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Cooking up issue 4



We all have a kitchen drawer over stuffed with culinary kit at home. From the humble pestle and mortar to mod cons like the electric tin-opener and juicer, for some reason, we've

always been open to cooking with gadgets. It's fitting then that the kitchen is the first room most people expect to be revolutionised by smart home tech. This is according to a recent survey of 1,500 consumers in the UK, France and Germany. Famous for haute cuisine, it's perhaps no surprise French pollsters in particular highly rated an oven that preheats canapés, as well as a fridge that reminds you what recipe ingredients you need to buy.

But is our relationship with gastronomic gear healthy? We're all for utensils that save time, but too often modern gizmos seem to replace a cooking skill that we have lost. In this month's **Gadget**, we don't just reveal best kitchen tech, we also explore the science of food and explain how the current trend for molecular gastronomy works.

Not a fan of playing with your food? Don't worry! Anyone who has tasted my signature dish of 'charred on the outside, frozen on the inside surprise' knows that I shouldn't be allowed anywhere near a stove. Instead I draw the line with kitchen kit at the Best Morning Ever Mug, which has a built-in perch to store a donut on and also keeps your coffee warmer for longer. This is just one of the 50 kickass Kickstarters that we can't wait to arrive in 2016. Discover more on page 12.

THE TEAM'S TOP TECH THIS MONTH

Dan Hutchinson Editor in chief Can't wait – or afford – an Oculus Rift or HoloLens? Check out



headset (page 64). Adele Jordan Production Editor

the £50 Homido VR

As someone who loses stuff at the back of my wardrobe, I really want a Wuvo Spot (page 13).



Dom Peppiatt Senior Staff Writer

The Pioneer XDP-100R (page 74) has freed me from the tyranny of highlycompressed music.



Andy Downes

Senior Art Editor
My favourite has to be
Flyte (page 44), the
levitating light bulb – it
looks so cool. What a
bright idea!



Harriet Knight Assistant Designer

It's a bit out there, but the health-tracking Tech Tats (page 84) look brilliantly scifi and so clever!





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WHATEVER 114 Happenen To...



STARTUP

KICKASS KICKSTARTERS • NEAR FUTURE TECH
LATEST LAUNCHES

Companion drone

A colour-matched drone can be used from the car to live steam your drive or go and knock on someone's front door while you keep the engine running

Dronelaunching pad

As if having a built-in launchpad for a drone wasn't enough, you can control the 12,000 LEDs in the launch pad to display whatever you like, such as a company logo or a warning alert



THE RINSPEED ETOS IS A SELF-DRIVING HYBRID WITH ITS OWN DRONE

ETA JAN '16

If you're eager to stand out in the morning commute then you can't do much better than the Rinspeed Etos, a jaw-dropping concept car scheduled to be shown off at CES in January. Chief among the vehicle's most notable features is the drone-launching pad around the back of the car: its makers say you could use the bundled drone for anything from filming your road trips to fetching a bouquet of flowers from a nearby store.

Oh, did we mention it's driverless too? The Rinspeed Etos is designed to eventually operate with complete autonomy, with a foldable steering wheel that you can stow out of sight when you want the computers to take over and watch the road for you. Passengers are then moved closer to the windshield for a better view. Self-driving motors are still a long way from being legal of course, but we

know we'll get a glimpse of this inspired concept car in January 2016.

Rinspeed boss Frank M.
Rinderknecht, the Swiss visionary behind the car, says he wants to explore the future of digital automotive engineering with the Etos, in concept form at least. The Harman-powered software system acts "just like a personal assistant". According to Rinspeed: "The system operates in a thinking, courteous and anticipatory manner. In addition, it delivers perfect entertainment, connectivity and maximum safety."

Superior safety and entertainment technologies are all well and good, but it's the drone we'd be spending most of our time playing with if we ever got behind the wheel of the Rinspeed Etos.

Where have I seen this before?



Self-driving car

RINSPEED

Tech and auto manufacturers are falling over themselves to develop self-driving car technology: Google and Nissan are two of the biggest names working on getting the hardware and software ready for public use. At least some level of autonomous control should make it to new cars by 2020.





READ EMAILS WHILE BRUSHING YOUR TEETH

ETA jun '16

As water and electronics have such an uneasy relationship, the bathroom is one of the few places you can escape from the always-on digital world for a while. MIRROReins wants to break down that last boundary with a high-definition screen that can bring your music and movies into the bathroom with you – it's like having a basic computer screen at your very wet and crinkled fingertips.

From Facebook updates to music streaming, the makers of MIRROReins have ambitious plans for their new bit of gadgetry. As the device is based on Android, you'll be able to run most Android apps on it: think Netflix, Twitter, news feeds,

traffic information for your morning drive to work and so on.

"MIRROReins is the solution that upgrades your bathroom to the 21st century," say inventors Christian Baltes and Micha Nehring. "You can leave your mobile where it belongs: safe and sound on your desk."

Whether it's checking the news while you brush your teeth or knowing you have another half an hour in the bath because your friends are running late, MIRROReins is designed to work as an extension of your smartphone. All its developers need now is €650,000 (about £455,000) in Indiegogo funding in order to make their invention a reality.

WHAT MIRROREINS CAN DO

Social media updates

Get your early morning Twitter and Facebook fix while you are washing the sleep from your eyes

Public webcams

Not a webcam of your bathroom, obviously, but instead, some live feeds of public webcams from across the world

Traffic updates

MIRROReins tells you how quickly you need to be out of the house, in the car and what holdups there will be

Breaking news

Catch up with
what's been happening in the
world overnight
when you are
brushing and flossing your teeth

Weather updates

Start thinking about the clothes you need to be wearing for the day before you leave the bathroom

Your face

MIRROReins is still a mirror and you can quickly switch off all of the extra digital functions if you just want to see your beautiful face

INFINITY IS THE KIDS **COMPUTER YOU NEVER** NEED TO UPGRADE

ETA Sep '16

The Infinity modular laptop is designed to cut down electronic waste and give kids a headstart on computing. This colourful, chunky computer is powerful, robust and enables you to upgrade various components with ease - like rearranging LEGO bricks.

"Designed to last for an entire childhood – or even longer – the Infinity has been specifically developed to be the perfect STEM learning experience by not-for-profit One Education," say its makers. "Every Infinity ordered contributes to the distribution of technology to the children, schools and communities who need it most."

One Education wants to make the Infinity cheap enough to be affordable for anyone. For instance, if you pledge \$499 on Indiegogo, you receive one Infinity for yourself and one for a child in need somewhere in the world.

The screen detaches completely to give kids a portable tablet they can take anywhere, for work or play, and upgrading components like the battery or the main chipset is simple enough for them to do on their own. There are some decent specs under the hood too and it connects to Wi-Fi and Bluetooth out of the box.

Infinity screen

The display of the Infinity is a 8.9-inch capacitive touchscreen running at a decent resolution of 2,560 by 1,600 pixels. It's not quite an iPad, but then it doesn't need to be

Android on board The Infinity runs a customised version

of Android (that teachers can control) so developing apps for the device is straightforward. A full Linux-desktop version is on the way

Replaceable modules

Repairing or upgrading an Infinity is easy enough for the kids to do themselves, as each module is a different colour and size — it all simply snaps into place via USB

App selection

Speaking of apps, there's a curated selection of fun and educational free apps available: in other words, plenty to entertain and inform young minds, but no Netflix

Core specs

Under the chunky frame of the Infinity you'll find a 1.4GHz CPU, 1GB RAM and 8GB storage that can be expanded via a memory card. There are basic cameras front and real

DIGITAL NATIVES BY NUMBERS

of 1 to 5 year olds with gadgets

1 in every 5 minutes

The time spent by kids with electronics



have devices damaged by kids

of teens are online almost constantly

time since 1995

8 hours a day

rise in kids' screen The daily time spent with media (8 to 10 years)



MEET THE DRONE THAT WON'T TAKE YOUR EYE OUT

ETA <u>Sept '16</u>

Flying at high speeds and at low heights, covered in spinning blades and often piloted by hobbyists that don't know what they are doing, drones can actually be pretty dangerous. Entrepreneur and inventor Laurent Eschenauer certainly thinks so. "Consumer drones on the market today are mostly multicopters, meaning that they have four or more fast-spinning propellers," he tells us. "These can be dangerous and cause deep wounds if they collide with a person."

However, rather than duck and dive away from the pleasure of drone ownership, with his assembled Belgian development team, Eschenauer has come up with Fleye: a brand new drone design with all the moving parts fully shielded in a plastic shell. This ensures that it cannot scratch anyone with its rotor blades, but also that it's a bit more resistant to crash damage. It's ducted-fan design,

which has four control vanes, also means it should be more stable in the air anyway. The end result is something that resembles half a football with a camera on top.

Controlled through either an iPhone or an Android smartphone (or a Bluetooth gamepad) you can enjoy its selfie, hover or panorama modes as well as manually aiming the camera yourself. While it may have a 5MP camera, it's the scope of the drone that excites us the most.

Eschenauer says "the purpose of Fleye, like most drones on the market, is to take photos and videos from places that are difficult to reach", but as it runs Linux and has open APIs, developers can program it to do things and even produce their own apps for the drone. Given its safety and autonomy, we can see it being adapted for deliveries – as long as it improves on its 10-minute flight time.

A BRIEF HISTORY OF DELIVERY DRONES



Pie in the sky

Domino's Pizza modded a Steadidrone EI8HT octocopter to create the test drone, DomiCopter, capable of airlifting a pizza to your front door



Airborne Amazon

Amazon revealed a prototype octacopter drone they said could deliver five pound parcels up to 10 miles from its warehouse



Juist the medicine

DHL Parcel sent medications and other goodies via a quadcopter to the German island of Juist in the North Sea



Flirting with success

Flirty's drone deliveries were FAA approved so the company used its hexacopter to send 24 packages of medical supplies to Wise, Virginia



Under Google's Wing

Google says its prototype aircraft (with a wingspan of 1.5m/4.9ft) will be ready to deliver by 2017



Nov 2015

July

2015

Moving up a gear

Two years on, Amazon's Prime Air returned travelling 15 miles at up to 55mph. No wonder Jeremy Clarkson is promoting it Mon includes card

ONE



The new shape of photography is here.

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RISHI SANYAL, DPREVIEW





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012 SO NEXT BIG THINGS





NEXT BEST BY THIS S.

THE MOST AMAZING TECH INNOVATIONS ARRIVING IN **2016**

Roll your mind back five years and the concept of crowdfunding was pretty much unheard of. Asking the public to fund your ideas over the internet seemed liked a surefire way of publicly ridiculing yourself, but it's actually turned into a multimillion-dollar business.

The prevalence of both Kickstarter and Indiegogo has offered secure platforms for budding entrepreneurs to connect with millions of potential buyers and the results have been startling. Some of the biggest advancements in technology have come into fruition thanks to these platforms, especially in robotics and smartphones. That said, there's always that element of danger and it's not

uncommon to find the dashed hopes of products that failed to make it to market or, on occasion, completely flop once they do – we're looking at you OUYA!

But let's forget the bad stuff, crowdfunding is awesome and it's certainly the future for how many of us will get our hands on our favourite products in the next 10 years or so. Unfortunately, there's a lot of choice out there, but we've scoured high and low to find the absolute best projects you need to be getting behind. None of them are guaranteed to be runaway successes, but the following weird and wacky gizmos should be appearing in your home by the end of 2016.



O kickstarter.com
Kickstarter brings together
entrepreneurs, artists,
designers and filmmakers to
offer a simple platform for
them all to try and achieve
their funding goals.

Indiegogo

• indiegogo.com Perhaps a bit lesserknown than Kickstarter, but Indiegogo is the second biggest crowdfunding site on the web, with millions of dollars being invested yearly.

GoFundMe

• gofundme.com Looking to invest in people and their potential rather than specific product-based projects? Look no further than the world-renowned GoFundMe website.







Who needs real friends when **BUDDY** is around?

ETA Jul '16 | Country of origin USA | Funding achieved \$616,432 bit.ly/kickasskickstarter7

> If you're an avid fan of the Terminator series or any number of associated sci-fi flicks, then the chances are that you may have a fairly set opinion that any humanoid resembling droids are slightly terrifying. While Buddy does sport that robotic E.T look, spending just a few minutes with this robot will soon make you realise it is actually the ultimate family robot. For adults, Buddy can be your own personal assistant, giving you reminders of upcoming tasks, using

BUDDY'S BEST FEATURES



The front-facing camera on Buddy is able to distinguish between humans and objects In turn, this enables him to track your movements and interact with you

Avoids collisions

Voice control

Buddy acts as a smarthome hub and connects to all your smart devices. Users can then use their voice to ask Buddy to perform various smarthome tasks

its programmable memory to offer recipes and even use its built-in camera to offer night-time surveillance of your home. It also acts as a virtual nanny for your children; with things like playing games, telling stories and education on spelling all possible.

Nevertheless, the most exciting aspect of Buddy is that it's based on a complete modular platform. This enables users to design their own tasks and memory options for Buddy and install them when they see fit. There's also a whole range of accessories to really show off what Buddy can do and expand his feature set tenfold. Buddy may not be the terrifying robot from the future we were expecting, but he's one of the most useful inventions out there.





Phiro

Phiro is one of the easiest entry points into robotics for kids and, best of all, it also works with actual Lego pieces.

ETA May '16

Funding achieved \$81,380 bit.ly/kickasskickstarter11

Volta Flyer

The Volta Flyer is a kid-friendly solar-powered aircraft that relies on charging twin capacitors to help it launch and glide through the air. ETA Mar '16

Funding achieved \$42,652 bit.ly/kickasskickstarter12

Tiny Arcade

You can now relive the golden age of video games, but on a very small scale with this DIY arcade cabinet that fits in the palm of your hand. ETA Mar '16

Funding achieved \$71,612 bit.ly/kickasskickstarter13





Surveillance has never been cuter, thanks to **ULO**

ETA Nov '16 | Country of origin Luxembourg | Funding achieved €1,618,869 ● bit.ly/kickasskickstarters8

Don't worry, this really is the cutest robot ever, but looks can be deceiving. Looking past Ulo's sweet smile there lies a built-in surveillance system that can watch, record and share footage from wherever you place him. It uses eye expressions to contact you with each eye gesture meaning something different, which is an effective way to let you know if it has found something. If Ulo does find something suspicious, it'll turn it into a GIF file and email it you.



The Polycade

A retro-inspired arcade machine that uses detachable boards to help you teach your kids about some of the arcade's best-ever titles.

ETA Mar '16

Funding achieved \$121,576

bit.ly/kickasskickstarter14



O Watch

Help your kids explore the world of Arduino-based 3D printing and programming through the world's first fully 3D printed smartwatch. ETA Feb '16

Funding achieved \$18,703

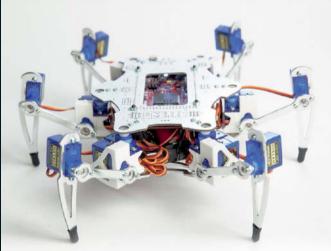
• bit.ly/kickasskickstarter15



Transformers? Pfft, RER® is the real deal

ETA Feb '16 | Country of origin Malaysia | Funding achieved \$15,918 | bit.ly/kickasskickstarter9

While creating a robot is one thing, being able to customise its look is another. The Rero is by and large your own portable Transformer that can be tinkered with depending on the style of robot you want. For this to work, Rero is made out of sliding blocks that can be disassembled and rebuilt to interconnect into any robot shape you deem necessary. Got a wacky imagination? Then the Rero will almost definitely be for you.



Can **STEM!** squash your fear of spiders?

ETA Sep '16 | Country of origin Croatia | Funding achieved \$33,539 | bit.ly/kickasskickstarter10

Competing in Robot Wars will always be a farfetched dream, but STEMI gives you the entry point you need to create your own robot from scratch. Sure, it won't match some of the crazy robots coming from Japan, but creating this hexapod is no easy feat – luckily there are instructions on hand to help you out. However, it doesn't stop there, first you'll need to program your own robot: make it walk, emit sounds and even give it emotions!









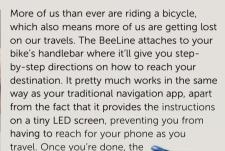
You'll never get lost again with **BEELINE**

ETA Aug '16 | Country of origin UK | Funding achieved £150,185 bit.ly/kickasskickstarter18



Follow the compass

The interface will automatically guide you to the destination, meaning all you need to do is steer the bike and watch for oncoming traffic, of course



BeeLine is small enough to be attached to your keyring or even placed inside your wallet.



Me-Mover FIT

If you're crazy enough to want a workout on the go, FIT is a step machine on wheels, built to provide a low impact workout.

ETA Jun '16

Funding achieved \$218,568

bit.ly/kickasskickstarter20



FlyKly SmartPed

The FlyKly SmartPed is a completely collapsible electric scooter that prides itself on its elegant design and ridiculously simple control system to help explore your surroundings.

ETA Mar '16

Safety first

The PhoneDrone casing has extra protection

to help keep your

absolute minimum

Funding achieved €385,467 bit.ly/kickasskickstarter21



ETA Sep '16 | Country of origin USA | Funding achieved \$325,952 bit.ly/kickasskickstarter19



To really show off to your friends, why not control your PhoneDrone with the Apple Watch? Sure, it'll require a lot of practise, but imagine how cool you would look!

Drones are pretty cool, but do you know what's even better? Turning your smartphone into a drone. PhoneDrone does exactly that, turning any iPhone or Android phone into a fully autonomous aerial camera. The technology behind it has taken advantage of the built-in sensors, processors and wireless capability of any smartphone, then reconfigured them to make it possible to fly and control your smartphone in the air. It's much cheaper than buying an out of the box drone and let's face it, watching your smartphone take to the air and fly high above you has got to be worth it, right?



Cargo Node

Not only can the Cargo Node some how be folded into one third of its full size, it has also been carefully built as a foldable bike that can be carried onto public transport.

ETA Apr '16

Funding achieved \$153,638





Add your sound

Customisable sensors enable the Oval to be completely revamped every day, week, month or year

Cast

Unify and smartify every TV in your household with Cast and watch the same film across every set in just a few simple steps.

ETA **Sep '16**

Funding achieved \$104, 967

bit.ly/kickasskickstarter25



Guitar Triller

The Guitar Triller uses gravity and the curling motion of fingers to help bounce off the strings and create a whole new style of sound.

ETA Jan '16

Funding achieved \$34,664

bit.ly/kickasskickstarter26



The Light Clock

For a funky new way to tell the time, attach The Light Clock to your wall and learn to tell the time solely using its coloured sections.

ETA May '16

Funding achieved \$31,069

bit.ly/kickasskickstarter27

Become a YouTube sensation with **CVAL**

ETA May '16 | Country of origin Spain | Funding achieved €348,018

• bit.lv/kickasskickstarter23

What if you could play the traditionally acoustic-sounding handpan as an electrical instrument? Well, now it's possible, thanks to the Oval. Designed to take any handpan novice and turn them into a master musician, the Oval has been lined with different sensors that respond to the user's touch when hit. As notes are played, it's possible to experiment with different sensors and how they interact with each other — with the ultimate aim that you'll be able to create silky

smooth sounds in no time at all. Where things get really clever is when you want to adjust how each sensor responds. Changing things like the pitch and scale completely changes the way Oval sounds, offering a musical instrument that's constantly changing based on your tastes that day. Any tracks you create, no matter how bad, can then be ported across to either your smatphone or some professional-editing software, such as Logic or GarageBand.

CROWDFUND YOUR GENIUS



With £150,000 of funding, the BeeLine team give us the inside tips on creating a successful Kickstarter campaign

You have a great idea and you've started developing it, now you want to see what the world thinks and

make it happen – crowdfunding is a brilliant way to do that. Be careful though, as success isn't guaranteed, no matter how good your idea is. Here are five pointers to help you make the most of your crowdfunding campaign.

O1 Create a movement

Even in the run up to the campaign, you need to start building a following. Get your social media set up, get all your friends involved and start telling a story people can get behind. This way, you'll already have a tonne of customers ready to get you going when you press go.

Share with others

Anything created with Oval can be sent to either your smartphone or an editing program for further work or to be shared

Experiment

with layers

Play around with layered

sounds to add depth to

any tracks you create



Stay in sync

A built-in ARM processing core keeps the entire system working in perfect harmony, producing a completely seamless audio experience

Multiroom sound

Having the power of two Hi-Fi speakers in one package is great, but best of all, the small stature of The Core means it's highly portable



Partying never sounded better thanks to **THE CORE**

ETA Apr '16 | Country of origin Canada | Funding achieved \$1,518,156 bit.ly/kickasskickstarter24

The quest for the perfect speaker is arduous and long, but maybe, just maybe, we have the solution you need. Don't be put off by the portable size of The Core, as what's hidden within has managed to add the power of two full-sized speakers into one little product, with particular attention being held to how it deals

with bass and treble levels in all songs. Audiophiles out there will be pleased to see that there's dynamic retuning for better subwoofer integration and a tantalising downward-firing woofer providing 120 watts of pure power. The only question that remains is how many will you order?



Scrub up well

Photos and videos are paramount. This is because it's your only chance to show off what you have created, so make sure it looks beautiful. Don't be fooled into thinking this is an easy or quick task to do well or even right — it takes longer than you think, but it's definitely worth it in the long run.

Tell the world

No matter how well you tell your story, for someone to support your project they need to be able to find it and there's a lot out there. Contact journalists, blogs, mailing lists, tweet, get everyone you know to tweet, even get out on the street and start telling people. Reaching people is essential.

14 Show character As much as the product

you're offering, backers are supporting you as people, so let them know who you are. This can be through videos and photos, but also the way the page is written and the way you respond to questions and comments. Be authentic, people will appreciate that.



ACPAD

The world's first wireless MIDI controller for acoustic guitars looks to finally bridge the gap between electronic and acoustic music.

ETA May '16

Funding achieved €296,922

bit.ly/kickasskickstarter28



Arpeggio

A super simple instrument for composing, saving and performing melodies, with the added extra of being an arpeggiator.

ETA **Apr '16**

Funding achieved \$94,714

bit.ly/kickasskickstarter29



Kurv Guitar

The term guitar has been taken to a new level with the Kurv Guitar. Rock out to your favourite tracks using gestures and sensors.

ETA Sep '16

Funding achieved £32,673



ETA Apr '16 | Country of origin UK | Funding achieved £116,930

bit.ly/kickasskickstarter31



Through the AuraVisor users have access to the entire Google Play store, where they can download a good number of VR apps and games

Thanks to the prominence of Oculus Rift, the desire for VR headsets has never been greater – enter the AuraVisor. However, instead of just immersing yourself in a game or two, AuraVisor takes it further; in fact, it blows pretty much all other headsets out of the water. The unit works without a smartphone or PC, with the headset including a five-inch on-board Android computer from where you can download apps, watch films, play games and enjoy your favourite albums.

All content is delivered through a 100-degree field of view and is streamed at 1080p. It's comparable to having a full cinema screen only millimetres away from your eyes, but the only downside is that you'll never want to watch a standard DVD ever again after this! However, if gaming is still at the forefront of your VR dreams, then you'll be pleased to know that there's both a quad-core processor to keep things running smoothly and support for both the Unity 4 and Unity 5 engine. Call it a jack of all trades if you will, but the AuraVisor could soon be the future of media consumption as we know it.



Gloveone

Gloveone turns your hands into virtual sensors, enabling you to really feel the virtual world around you through haptic feedback.
ETA Feb '16
Funding achieved \$151,608

VRGO is the chair that redefines virtual reality

ETA May '16 | Country of origin UK | Funding achieved £22,100

• bit.ly/kickasskickstarter32

What better way to improve your VR experience than by getting your bum in on the action? The VRGO is a 360-degree directional chair that enables you to tilt and spin, with your actions appearing within the game you're playing. It partners with most VR headsets and its central button is a one-stop shop for connecting to your PC or games console. For those worrying about constantly falling out as you turn, put those fears to one side as the VRGO has a weighted self-righting mechanism to keep the chair as central as possible at all times. Is this the VR accompaniment you've been waiting for?



FOVE

Eye tracking in VR headsets is now possible thanks to Fove. The headset latches onto faint movements of the eye for precise control.

ETA May '16

Funding achieved \$480,650

bit.ly/kickasskickstarter35

PowerUP FPV

Not only can you remotely control this paper airplane with your phone, but you can watch its journey through a Google Cardboard headset.

ETA Jun '16

Funding achieved \$395,030

bit.ly/kickasskickstarter36

Next level VR Motion sensors line the whole of the wristband to offer a very detailed tr system. It's powerful enough to trac the slightest of motions

Synchronise your hand

There's little to no latency between the movement with your hands and how they appear in game. It means you'll be guaranteed a superb gaming experience



ETA Mar '16 | Country of origin Japan | Funding achieved \$74,952

bit.ly/kickasskickstarter33

UnlimitedHand brings the concept of virtual reality and applies it to your hands and wrists – as strange as that sounds. The pad used to power the device is placed over your wrist and includes a motion tracker that helps reciprocate your movements into a game, while muscle sensors are able to display how powerful your movements are. They then work in sync with a whole number of compatible VR headsets, including the likes of Oculus Rift. It's without doubt the closest thing you can get to the actual feeling of swinging a sword in a game – without dressing up in your favourite suit of armour.



Gest

Relive the days of *Tron* with Gest's intuitive gesture system that enables you to wirelesslycontrol computers and smartphones.

ETA Nov '16

Funding achieved \$199,988

bit.ly/kickasskickstarter37



Tesseract

The Tesseract is a six-axis movement controller (mouse) that offers both linear and rotational movement of all your computer games.

ETA Oct '16

Funding achieved £11,276





Breathability

The back of the shirt is coated in a vented mesh that enables your skin to breathe and prevent any moisture from building up

ETA May '16 | Country of origin USA | Funding achieved \$23,026 bit.ly/kickasskickstarter39

Fitness gadgets are plentiful, but the same can't really be said about the clothes you wear. If you want to achieve your fitness goals, wearing any old shirt won't do the job, instead you'll want to check out the Hydration Shirt. The shirt targets the areas of your body where blood flows close to your skin and uses cooling inserts that can absorb the heat from your body and keep it nice and cool. The benefits of this in the long run are that it'll help prevent injuries and keep you working out at your peak performance for longer periods of time.

Just recharge

If you notice the cooling inserts start to warm up, simply dump the shirt in some ice water or freezer to get them back at their ice-cold best

MOBELL is the first portable gym to get you ripped

ETA Mar '16 | Country of origin USA | Funding achieved \$25,257 • bit.ly/kickasskickstarter40



No gym? No problem. The MoBell is the world's first portable Olympic weight-training kit that equates to over 180lbs of equipment in one carry case. The different sized barbells are constructed by sliding different rods together, with more rods providing extra weight. They're constructed with steel, but use the dual-knurl marks and snap rings to make them as close to Olympic standard as possible. Once done, it's a simple case of unscrewing the parts, placing them in the carry case and taking your gym home with you. It's time to get rid of that expensive gym membership.

Lume Smart Leggings

Lume uses a specialised four-way stretch material to make these the most aerodynamic leggings on the market with a built-in pocket.

ETA **Feb '16**

Funding achieved \$21,973

bit.ly/kickasskickstarter44



Build your own **SMARTWATCH** with

BLOCKS

ETA May '16 | Country of origin UK | Funding achieved \$1,613,874 • bit.ly/kickasskickstarter41

Smartwatches are arguably the biggest advancement in mobile tech for a number of years – and rightly so, they're awesome! But until now, we've been fairly constrained to the options out there and some are just way too expensive for what they are. However, what if we told you that you could now build your own smartwatch? No ifs, no buts, just a simple way to get the smartwatch you've been dreaming of.

Blocks has been touted as the world's first modular smartwatch, enabling users to pick the functions and the design to completely customise their smartwatch experience. In the case of Blocks, the module capsules take the form of the watchstrap and while the components are the same size, their actual functions are completely different. Each block connects to the next by pushing them together and they're so swappable that you don't even need to restart your smartwatch to activate the new feature. So why should you care about this? Well, it's a surefire way to future proof your smartwatch, especially with new modules being released continuously. If

this is the future of smartwatches, we can't wait to try it out.

SIPPO

Aviska

ETA Mar '16

Don't slip as you go from your Mantis to Grasshopper pose any longer, as

the Aviska uses anchor-fit technology to keep this yoga mat completely still.

Funding achieved \$7,096

bit.ly/kickasskickstarter42

EdgeGear Shift

ETA Mar '16

The Shift makes using your Apple

angle when running or cycling.

Funding achieved \$53,001

bit.ly/kickasskickstarter43

Watch easier by moving it to the side

of your hand for an optimum-viewing

Drinking two litres of water a day is important, but if you're forgetful, SIPPO is a connected water bottle that will give you a nudge when needed. ETA **Feb '16**

Funding achieved \$56,504.

bit.ly/kickasskickstarter45



Link with Apple Pay

One of the key modules included with Blocks acts as an NFC reader, enabling you to use it as a payment source. All you need to do is link it with Apple Pay or Android Pay

Connect and go

The various modules of Blocks connect by simply pushing them together. It enables seamless swapping and reconnecting when you need it

Craft PERFECT BEER with PICO

ETA April '16 | Country of origin USA | Funding achieved \$1,403,359 bit.ly/kickasskickstarter46

Add your ingredients

Insert your pack of ingredients into the centre of the Pico unit, before topping it up with the required amount of water.

Personalise it Use the onboard LCD screen to customise the taste and style of your beer. At this point you'll also want to confirm the brewing temperature.



Let it brew Brewing takes time, so you'll need to be patient. Occupy yourself for a couple of hours before coming back to the smell

of a crisp lager.

Ferment it Don't worry, you're so close to tasting your creation. Fasten up the keg and let the beer ferment overnight. The next day you can enjoy a tipple or two.





Unless you have extensively researched the art of home brewing, the chances are that you rely on your local supermarket for when you fancy the odd tipple in the comfort of your own home. While home brewing kits are plentiful, they take a fair amount of legwork to really get into action and even then the results can be decidedly mixed.

The idea behind Pico is to bring that homebrew experience into your kitchen, just without any work on your part. It's a fully automated unit that uses prepackaged ingredients to help

The perfect brew

One of the common problems with home brewing is that it's difficult to brew at the right temperature. With the Pico kit, it manages to set the temperature vou need in minutes

craft the perfect beer at the ideal temperature. The heat that the unit generates is capable of producing enough beer for a five litre mini keg every time you use it. But don't worry if this all sounds a bit complicated, as Pico has a basic LCD screen where users can select from programmed settings and options depending

What's your flavour?

Ingredients are separated into different recipes, enabling you to experiment with different flavour combinations until you find one that works for you

on the style of beer that they want to brew. Fancy something with a bit of an extra kick? There's a setting and a set of ingredients that will fulfil this desire perfectly. The ideal beer will mean something different to every person, but luckily, Pico is versatile and can cater for everyone and anyone.



The BEST. MORNING. EVER. Mug

A mug with a doughnut holder on top for the ultimate breakfast treat? Shut up and take my money now. ETA Feb '16



The Grove Ecosystem is a smart indoor garden that provides owners with the tools to grow fresh and healthy food all year round. ETA Aug '16

Funding achieved \$412,181

bit.ly/kickasskickstarter50



Wio Link

Use the Wio Link to create your own smarthome apps and add some extra functions to any smart devices that you already own.

Funding achieved \$94,055 bit.ly/kickasskickstarter51

ETA Mar '16

Pura Scents

A programmable air freshener and nightlight that includes lots of scents, which you can time and switch between using any smartphone. ETA Jun'16

Funding achieved \$57,827 bit.ly/kickasskickstarter52







PLISO is the personal chef you've always wanted

ETA Feb '16 | Country of origin USA | Funding achieved \$112,946 bit.ly/kickasskickstarter47

Are you the kind of person that struggles cooking beans on toast? Well, you need to snap up a SmartHub right away. It's a single square-foot unit that encompasses an entire kitchen worktop into its small metallic frame. Using programmable options, users can cook meat to their desired taste, while it's also simple to boil water or other ingredients to an exact temperature. It's also remarkably fast at performing these tasks, primarily due to the induction burning it uses to get your ingredients up to speed in a matter of seconds rather than minutes.



The Lingots are a series of blocks that include the correct level of seed spacing and depth required for plants to grow

Move over Titchmarsh, VERITABLE is the new king of gardening

ETA **Apr '16** | Country of origin **France** | Funding achieved **€107,939 bit.ly/kickasskickstarter48**

Whether it's cats urinating, bad weather or just pure laziness that's keeping your garden from being in pristine shape, it is always difficult. For those who seek an easier option, meet Veritable, the autonomous indoor garden. Through a combination of an automated irrigation system, LED lights to

replicate sunlight and Lingots that present the same natural conditions for plants to grow as they would outside, this gardening wonder is able to grow flowers, herbs and tea leaves all by itself. All you need to do is to plant the seeds and then take the glory when they're ready to be picked.

smartнome тесн

All natural
One of the benefits of growing your
own herbs through the Veritable is
that you can make sure it contains no
pesticides or GMOs

Nuki

It's time to bring your door lock into the 21st century with Nuki, the world's first Bluetooth lock for your home or office.

ETA Out now

Funding achieved €385,524

bit.ly/kickasskickstarter53

MATRIX is the one smart hub to rule them all

ETA **May '16** | Country of origin **USA** | Funding achieved **\$104,157**

bit.ly/kickasskickstarter54

If you've taken the leap into equipping your home with the latest smart tech – then firstly, well done, but secondly, you may have made a big error. The MATRIX is an all-in-one device that can be customised to provide a myriad of programmable features, saving you the clutter of owning numerous devices. All it needs from your end are the apps you want it to run. Want it to be a security system? Easy. How about a weather monitor? Simple. The MATRIX can take any home and make it smart.







TINGBOT is the tiny computer with big ideas

ETA May '16 | Country of origin UK | Funding achieved £48,560

bit.ly/kickasskickstarter6

The Raspberry Pi has been one of the biggest advancements in computing so far this century and while it's fantastic on its own, Tingbot has taken it to the next level. The tiny device is perfect for anyone who wants to get truly creative with the Raspberry Pi, enabling users to draw, design graphics, make apps and program robots. The choice of things you can do with Tingbot are so vast that we couldn't possibly list them all here, but if you're an avid Raspberry Pi user then this is the accompanying device you need to buy.

Learn, create and develop

Thanks to the great simplicity of Raspberry Pi, Tingbot offers an easy way to get started with using code and developing apps. Can you come up with the next big breakaway app?



G-RO

A truly novel wheel design and some really superb ergonomics make the G-RO one of the lightest, most durable and secure carry-on bags that's on the market.

ETA Aug '16

Funding achieved \$3,307,773

bit.ly/kickasskickstarter2



Mokacam

We love GoPro cameras, but the Mokacam can now officially be called the world's smallest 4K-action camera out there. A must have for any avid photographers.

ETA Feb '16

Funding achieved \$309,834

bit.ly/kickasskickstarter3



Wuvo Spot

This unassuming small spot can be attached to anything you own, so if you lose it, you can track its location using your smartphone and the Wuvo's built-in GPS tracker.

ETA Feb '16

Funding achieved \$21,437

bit.ly/kickasskickstarter4



Atmotube is a wearable device that monitors the quality and overall safety of the air that you are breathing, it will then alert you when you're in potential danger.

ETA Mar '16

Funding achieved \$137,310

bit.ly/kickasskickstarter5

Upgrade your photography game with **PULSE**

ETA Feb '16 | Country of origin USA | Funding achieved \$1,110,820 bit.ly/kickasskickstarter1

There's not a whole lost of difference between our smartphone cameras and many high-end DSLRs on the market – the technology is just that good these days. However, the Pulse is an amazing new device that looks to bridge the two together. Essentially, it's an extra attachment that plugs directly into your DSLR, with full wireless tethering available to your smartphone. Users are able to view whatever is in frame of the DSLR on their smartphone and take a snap or two. No wires, no complicated set-up process and a whole new take on portable photography not seem nefore.



Connect and go

The easiest way to connect the Pulse to your DSLR is via USB. It offers the quickest set-up process to tether it to your smartphone

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RAISING SOUNDBAR



Fill your house with music the easy way

Modern televisions look great, don't they? That ultra-thin aesthetic that's become so popular means they take up practically no room and that sharp OLED/plasma image makes chilling and watching Netflix or your favourite Blu-Ray a treat.

Unfortunately, all that work that's gone into making TVs so thin means they shed some pretty vital parts, including decent speakers. Connecting to a sound system of some kind these days is the norm, but – to make things complicated – different houses or flats are going to want different setups. There are three main divisions: soundbars, surround-sound systems and home-cinema systems.

So what's the difference? Well, typically home-cinema systems come in a 5.1 arrangement (that in layman's terms means five speakers and a subwoofer) and are often bundled with Blu-Ray players. Surround-sound systems will also use an amplifier before the sound heads to the speakers, something home-cinema setups bypass.

Soundbars though, are more compact. They fit several speakers into one long bar, which can then be mounted below your TV unit or on a wall. They're neater, more compact and generally use fewer wires than their multispeaker rivals. We will show you how all that works with the Orbitsound A70 airSoundbar – an innovation in soundbar technology that's aiming to tackle the one thing soundbars fall down on: getting balanced stereo sound, no matter where you're sitting.

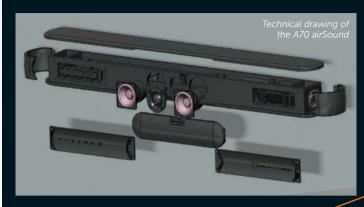


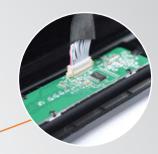
HOW THE A70 AIRSOUND WORKS

The usual problem you'll find with soundbars against their modular, multi-speaker cousins is that the sweet spot where stereo sound works perfectly is fairly small. That means you have to sit directly in front of the soundbar to hear everything that's going on in a film, television

show or game. The A70 airSOUND introduces smart technology that utilises side-firing speakers to give bonus width to the sound the device creates. Basically meaning that you can get that full, satisfying array of sound, no matter where you (or the soundbar) are situated.

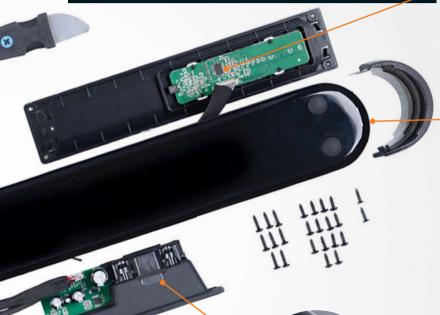






Streamlined pairing of sound

You don't want to be attached to your devices with wires, right? Using apt-X Bluetooth and an NFC chip, you can get lossless (and wireless) streaming to your soundbar





On the right side

The A70 is fitted with sidefiring neodymium drivers to fill in that special detail that so many soundbars neglect. Outputting at 300 watts, these side speakers ensure full and well-rounded audio



Is it really all about that bass?

The subwoofer makes sure the meatier sounds the soundbar can't produce itself aren't forgotten about: it might be uglier than its smaller companion, but it's essential!



You're wired

For those opting for wired connections (better for playing high-resolution audio), there's a dedicated optical input, but no HDMI slot. However, most TVs are fine with optical

HOW DID WE TEARDOWN THIS SPEAKER?

iFixit Pro Tech Toolkit

£44 | \$65

To take apart this speaker we used the iFixit Pro Tech Toolkit, which contains everything need for poking, prodding, lifting and unscrewing. Use it to remove and replace parts or simply examine your beloved gadgets.

Tools of the breakdown 7 Angled tweezers

4 Three opening tools

9 10

11 Jimmy

8 Blunt tweezers

12 Magnetic pad



Cooklise Coo

Master molecular gastronomy with this cutting-edge kit

Serving up a mean spaghetti bolognese or black forest gateau isn't enough to impress at a dinner party anymore. So-called molecular gastronomists like Heston Blumenthal have pushed the frontiers of fine dining. You are now expected to know how to deconstruct dishes into burst-in-the-mouth bubbles, create colourful foams, boil a steak in a bag for three days and produce a multisensory symphony on a plate.

This may sound intimidating, but never fear for Gadget is here! As these cooking experiments have moved from being very out there to in your own home, a kitchen drawer's worth of cutting-edge kit has sprung up. From harmless chemical additives that you can sprinkle in your dishes, to contraptions that remove and modify key areas of your food's molecular make-up, we have rounded up the most affordable and accessible gizmos that let any chef (professional or not) get really creative with the dishes they cook.

What's more, for a trend that started in French laboratories, soon becoming an obsession of Hungarian physicists before being popularised by Heston, molecular cuisine is surprisingly simple, so we have included a few step-by-step guides to get you started. Let's cook!

The pipettes

Used to dispense droplets in chemical baths and deliver sodium alginate solution steadily and evenly, pipettes make sure each sphere retains its integrity

The silicon mould

The mould mat is designed to make it easy to pull off the reverse-frozen spherification process – something that's a lot more difficult to do without the dedicated kit





COOK WITH CHEMICALS

Modern cuisine involves a lot of additives, but what do they do?

Agar-Agar

Discovered in 1658, this

animal gelatine in a lot of

vegetarian food and has

thickening agent gel replaces

virtually no taste or colour. It has a high melting point and is incredibly versatile.

£30 | \$50

The syringe
You can use this syringe to inject

marinades into meats before roasting

meticulously dot sauce or vinaigrette

or deep frying, or alternatively

onto food as a delicate garnish

moleculargastronomy com

Cuisine R-Evolution

A kit containing a mix of chemicals and clever apparatus that lets you really play with your food and discover inventive ways of presenting your dishes.

The measuring spoon

Small scale and perfect for getting those precise measurements just right, this spoon might seem simple, but don't take it for granted

STELL L-TM SL

Calcium Lactate

An acidity stabiliser that is found in baking powder, its primary purpose in molecular cuisine is as a firming agent to keep fruit and fish from degrading over time.

Sa SODIUM ALGINATE

CALCIUM LACTATE

Sodium Alginate

A polysaccharide or a sugar chain from the cell wall of algae, it resists heat, making it a baker's dream ingredient. It lets cream and jelly keep its shape during cooking.



Xanthan Gum

A thickener and a stabiliser, Xanthan Gum is the stuff you find in ice creams that prevents the formation of ice crystals and provides a high-fat mouth feel in otherwise light dishes.



Soy Lecithin

A polysaccharide or a sugar chain, from the cell wall of algae. It's used as an emulsifier in margarines and enables fats to remain soluble in high-water recipes or compounds.



The slotted spoon

Used to retrieve spherified caviar from the chemical baths once the membranes surrounding the little balls offered have formed



"Accessible gizmos that let any chef (professional or not) get really creative" CREATE BURST-IN-YOUR-M

Use the Cuisine R-Evolution

to play with your food

Often called caviar, spherified food offers an interesting way to both present and consume your food. If you have a fairly bland dish, you can spherify one of the ingredients (or more, if you're feeling experimental) to make the texture of the food that bit more exciting. Typically, spherification means you will be encapsulating liquid inside an edible skin that keeps the liquid in shape and results in an exciting burst-in-themouth sensation when consumed. This skin is imperceptible in your mouth though, so if the idea of eating a protective membrane was putting you off, don't worry!

Spheres are flexible and can be manipulated easily – advanced techniques include introducing solid elements to the liquid inside the sphere, meaning you can add multiple textures and tastes to an already interesting dish. You can make spheres out of practically anything that doesn't contain too much calcium (so dairy is off the menu), but to do that, you need to know the science behind the balls.

Drop the spheres

You will want to be gentle with the spheres – they need to rest in the bath for three minutes once dropped in, as this gives them chance to form a membrane. Wash them in cold water afterwards



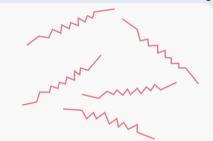
Make your ingredients

The thicker the liquid, the better, usually. Thinner ilquids can still be made into little spheres, but you will need to add Xanthan Gum in order to thicken the mixture.

Get your calcium right

Depending on the pH of the ingredients you're using, you need to add a calcium solution – this reacts with the sodium alginate to form a membrane. You can use calcium chloride or calcium lactate for this

Now for the chemistry

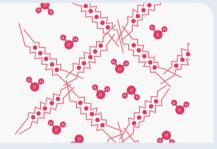


The molecule
The key to spherification is sodium
alginate – a long zig-zag shaped molecule. The
R-Evolution has five sachets of sodium alginate.



Q2 The mixture

As you pipette the liquid into a preparation bath, you introduce calcium ions to help the alginate molecules bind, forming a gel.



The combinationThe molecules rearrange and form a net that traps the liquid, resulting in a sphere.
Use the slotted spoon to retrieve your caviar.

PERFECTING PH

To spherify food, you need to make sure the pH level (that is, the acidity or alkaline content of the food) *is not* under 3.6 on the pH scale. You can bring this level up with sodium nitrate, but it's always handy to know where you're starting.



ACIDIC







OUTH B UBBLES

EAT ONE, PEARL ONE

Whilst it might not be capable of making those fat, juicy spheres you can see in the boxout to the right (made by the Cuisine R-Evolution), the Pearl-R Pro will make those fancy little pearls page 32 shows. It comes with both sodium alginate and calcium lactate so you can start making pearls out of anything straight away. It's the first machine in the world that can take food and make pearls out of them. Spherifying is usually a lengthy and messy process, but this takes the work out of it, at the cost of making bigger spheres.

£185 | \$150

moleculargastronomy.com

Molecule-R Pearl-R Pro



SPHERIFIED SERVING **SUGGESTIONS**



Deconstructed pumpkin pie

Pumpkin is a great autumnal taste - deconstructing it, serving it in a sphere with crust and cream is a fine dish.



Mojito cocktail sphere with mint

Mix lime, soda, rum, mint and sugar with calcium lactate and freeze in the silicon mould to make classic moiito spheres.



Raspberry ravioli

A perfectly sweet addition to dishes, raspberry ravioli spheres are ideal for people that don't usually like the sweet, tart taste of fruit.



Coco-almond fondant with balls

Recipes like this are a little more convoluted to make, but the result is largely worth it for the novelty dishes.



Carrot, orange and mango topper

Using the reverse spherification technique, vou can add ingredients to the interior of your dish.



Floating alcoholic spheres to drink

Make a sphere out of alcohol (like amaretto) and suspend it in the same liquid without fear that it will dissipate.

ALKALINE

NEUTRAL











THE SECRET TO COOKING THE PER CT STEAK

Vaccum-packed meat tastes far, far better than you'd expect

in an oven or

on a grill.

Sous vide is the latest revolution in cooking. Meaning 'under vacuum' in French, this method of cooking yields results unattainable via any other traditional means of preparation. Think about cooking seafood or delicate meats, the window for getting the meat perfectly cooked on the inside whilst perfecting the outside texture is small, not just in terms of cooking time, but also in temperature.

The main positive of cooking sous vide, despite its eponymous relation to cooking in a vacuum, is actually the ability to maintain accurate temperature control over hours or even days! This direct control pays off in a slew of ways: as a chef, you're freed

from the need to constantly keep yourself on a timer, letting you focus on other aspects of a dish whilst the meat sits in a vacuum. You're also able to cook the meat through with a consistent and even finish, no more burnt edges or cold centres here. A sealed bag cooked in boiling water also braises the meat as it cooks, meaning that any meat you cook this way inevitably ends up juicier and more tender than the same cut cooked

Season and seal

You don't need to season your dish too heavily since the meat cooks in its own juices, but you do need to make sure your meat is perfectly vacuum sealed. Airtight!

Leave it be

We cooked beef ribs with the Grant Sous Vide and left them in the water in the stainless-steel insulated tank for an incredible 72 hours! This isn't a quick method of cooking and this can be a plus or minus, but it has a countdown timer and an alarm to remind you when it's done

HOW DOES IT COMPARE?

You can clearly see the benefits below of a sous vide steak versus a traditionally grilled cut and other dishes - just make sure you sear the sous vide meat once it's out of the vacuum packing to get the perfect finish.

Sous vide

Traditional















See the results

After being subjected to the lower temperature for longer (you can completely control the temperature with the Immersion Circulator), you'll notice there's a smoother, much more even texture and a more active taste from the meat's naturally occurring juices

£499 | \$950

Grant Sous Vide

A device designed to cook food better than ever before, the sous vide produces an even, thorough finish equivalent to what you'd expect to find in a gourmet restaurant.

WHAT YOU'LL NEED

FoodSaver FFS002

You'll need a product similar to this in order to seal your food in polyethylene before it can be submerged – vacuum sealing is essential for the food to be effectively cooked.

£75 | \$113 | foodsaver.co.uk



Burton Sous Vide Water Bath Starter Kit

A starter kit that introduces you to everything you need to know, this machine enables you to cook multiple dishes at once – ideal for personal and commercial use alike.

£349 | \$526 | burtonsousvide.co.uk



Sansaire Sous Vide

You can always go with the skinnier, smaller and portable sous vide by Sansaire (this is the machine that prepared all the pictures in the Perfect steak boxout). You can fit it in any deep dish you want and turn even a crock pot into a sous vide!

£250 | \$199 | sansaire.com





DEH DRATION IS TASTIER AN IT SOUNDS

Learn how to stop wasting your food

Almost 50 per cent of the seven million tonnes of food the UK throws away every year comes from our homes – not restaurants or public institutions. A lot of the gadgets we have featured over these pages are fancy, sure, and they let you experiment with lots of mad-scientist methods of food preparation, but when it comes to practicality, food preservation gadgets are unbeatable.

Food dehydration is the process of drying food out and inhibiting the growth of bacteria, yeast and mould by removing water. Humans have been dehydrating food since 12,000BC – usually via evaporation – but in recent times there are more accessible ways of doing it, such as using the My Kitchen Food Dehydrator, that doesn't require permanent access to the sun or a good week of waiting around.



HOW DEHYDRATING WORKS

Firstly, there's standard dehydrating. Most fruits and vegetables typically have 80 to 95 per cent water content, with meat falling slightly to 50 to 75 per cent water content. Dehydrators remove this moisture from the food by using a heating element to warm the air inside the machine, causing the food to release its moisture. A series of fans channel this air through vents in the machine and reduce the water content in most food by up to 20 per cent. We dehydrated pineapple rings with the My Kitchen Food Dehydrator and as an added bonus, the vented air acted as an odouriser in our kitchen (but the machine took a *lot* of electricity to power).

My Kitchen Food Dehydrator

Dehydrate your own healthy fruit and vegetable snacks with gentle, evenly drawn heat that doesn't cook as it extracts.

Great for preparing easily stored snacks.

WHAT ABOUT FREEZE DRYING?

If you want to preserve food for a long time and don't want to damage the nutritional value of the vitamins and minerals of the ingredients, you will want to freeze-dry them: this method of food preservation can give practically anything a shelf-life of 25 years!

Fresh or cooked food is placed in a freeze dryer

Water can be added to the dried product, restoring the food to its original condition



SCE INTS AND SCE IN TS' ABILITIES

Trick your brain into tasting what isn't there

The human tongue is capable of perceiving five tastes – sweet, salty, sour, bitter and umami, but our sense of smell is capable of detecting about 10,000 chemicals in the air. As a chef, you can exploit this fact to create sophisticated and flavourful culinary experiences. Infusing food is one of the best ways to do this – instead of burning away flavours and aromas during cooking, you can add them to food later, once it's nearly ready to serve. You can also add aromas not often associated with food (think pine, lemongrass or oak) to your dishes.

You can perform these feats of sensory mixing relatively easily; the Volcano Vaporizer is primarily used as a vapour-inhaling device for use with tobacco and so on, but you can use these devices to lace your favourite foods with something a bit more exotic. We have chosen to focus on the Volcano Vaporizer because of its direct control over temperature: it has become a staple example in boundary-pushing kitchens around the world and we wanted to see exactly how it worked.



CAN YOU REALLY TASTE WHAT YOU CAN SMELL?

Think about how your taste is supposedly affected when your nose is blocked. It isn't, it's just that our sense of smell and taste are so tightly coupled. No one knows for certain, but it's theorised that the reason we experience this is a form of common synaesthesia – a sensation where one sense directly affects another (more extreme cases report people hearing colours, for example). What we do know is that the smell and taste centre comes from the same part of our hippocampus in the brain – making our brain identify the relationship between taste and smell then respond to it strongly.





HOW TO SM & KE YOUR FOOD SA Fe LY

Get a taste of the great outdoors inside your own home

A lot of smokers are outdoor contraptions as they are big heavy things that leak just as much smoke as they make. Whilst these things are good for getting under the skin of your food (so to speak), we prefer our smoking to be a little more portable.

The Smoking Gun is, essentially, a pipe with a fan inside. There's a chamber you can fill with whatever you like - wood chips, tea leaves, spices, flowers or even tobacco - and then light. The fan pumps the smoke either out of a nozzle at the base of the gun or through a rubber pipe that you can attach to the device and direct to add flavour to your food.

It's just as good for presentation purposes for your big dinner parties as it is for tasting - you can trap smoke under plates or glasses and have it seep out as you present your food, providing a nasal sensation to hopefully match the palette of the meal you have prepared. Because of the way the smoke is delivered, you can modify flavours of dishes that are otherwise non-smokable - we tried butter, chocolate and even cocktails (hickory works wonderfully with bourbon). Delivering smoke without needing to directly heat anything opens up the smoking to range to, well, just about anything you can imagine!

£70 | \$100

PolyScience Smoking Gun

Cool looking and easy to use, the Smoking Gun is a great shortcut for foodies that love the taste of smoked food, but hate the hassle of having to use outdoor smokers.

Chamber of secret spices

This chamber can be filled with a couple of pinches of whatever you desire - woodchips are better for taste, but herbs work brilliantly for aroma!

WOOD THAT YOU CAN SMOKE



Cherrywood – The fruitiest wood you can smoke with. Ideal to complement strong and juicy meat flavours.



Hickory – The most common smoking wood there is, hickory is both sweet and strong. Ideal for pork and beef.



Applewood – Mild, slightly sweet and also subtly fruity, this is a chip that works very well with poultry or pork.



Mesquite - A heavy, earthy vibe comes with this wood. The best smoking flavour for fish, chicken and vegetables.



The result

Hitting your food with the aun elicits a unique kind of joy – you're basically shooting flavour at a dish you have made. It's all the satisfaction of a BBQ without the mess

UNDER PRESSURE

If you prefer to smoke your meat the oldfashioned way, of course there's an indoor alternative to that too. The Tower Digital Pressure Cooker and Smoker benefits from multifunctionality, but is also a great device if you want to broaden your smoking remit. For example, you can smoke soups with the cooker and despite its size (it rocks an impressive six litre capacity!) you don't have to fill it up: it's just as adept at smoking a single fish fillet as it is at smoking a whole side of beef. Better yet, it has the function to keep food warm for 24 hours after smoking! Ideal for preparing big BBQ nights – even in winter.

£143 | \$119

Pressure Cooker



PUT SOME FOAM AND FIZZ IN YOUR DISH

Sex up homemade sauces with a siphon

Want to add a flavourful sauce to your dish, but don't want liquid sloshing all over your plate and diluting all that hard work you've put into your other flavours? Foam is the answer! Foam can be used for sweet or savoury dishes and despite how impressive they look on the plate, they're a lot more common in food than you would think.

Often thought of as garnishes to other dishes, foams actually take centre stage (well, plate) quite often - in both savoury and sweet food. Most ice creams are actually foams and so are other dairybased favourites: mousse, meringue and so on. But any baked goods that rise (brioche buns or sponge cake) technically count as foams too.

HOW TO WORK THE SIPHON



Pour the **L** ingredients Mix your prepared

ingredient liquid with either Xanthan Gum or Agar-Agar (each additive will work with different dishes). Using a handblender is your best bet here for the perfect preparation of flavours.



02 Now add the gas

Add Nitrous Oxide to the siphon and make sure you screw on the protective casing afterwards those canisters get incredibly cold when they are in action. This will create pressure.



3 Attach the nozzle Depending on what kind of foam dish you want to create, you will need to attach different kinds of nozzles. As a rule, the thinner the spout, the thicker the foam - vou'll want to use a wide-necked affair if you're keen on creating airs or espumas.

6 TYPES OF FOAM



SET FOAM: Technically, set foams refer to foams suspended in liquid that has been gelled – which basically means enough solid material has been added to the liquid that it will remain solid at serving temperature. EXAMPLE: Mousse

SOLID FOAM: Similar to dehydrated foam, solid foams trap air within a solid that's activated through baking. Traditional breads trap carbon dioxide as the air molecule, thanks to the veast reaction.

EXAMPLE: Bread, cake



LIGHT FOAM: If you use only gelatine to create a foam (rather than using a thickener or fat as well) you can make very light and sparse foams that sit on top of drinks, enhancing the way they go down.

EXAMPLE: Mint topper



DENSE FOAM: Similar to set foams, but without enough gelling agents to be a solid. Dense foams are often soups. Taking away one ingredient (the emulsifier) from mousse gets this result.

EXAMPLE: Jerusalem **Artichoke Foam Soup**



ESPUMA: Think of an espuma as flavour without texture. You have to make this kind of air foam with Soy Lecithin this is an emulsifier that has no gelling or thickening properties.

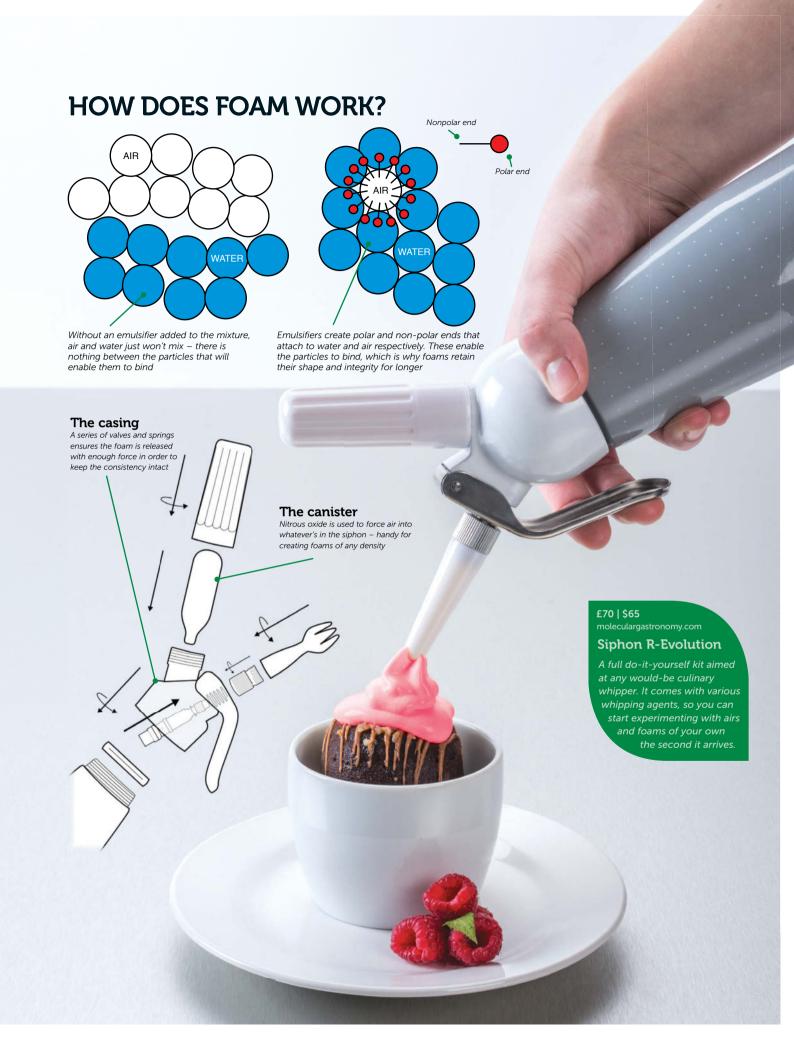
EXAMPLE: Mango, Coconut espuma



DEHYDRATED FOAM:

Making a traditional foam, then cooking it in an oven at a very low temperature will create very crunchy and fluffy foam concoctions that will then keep their shapes indefinitely.

EXAMPLE: Meringue





Watch your toast as it cooks

The word's first transparent toaster, the Magimix Vision lets you monitor your toast while it cooks, enabling you to make sure that you never over or under cook your bread again. It has extra-wide slots too, which makes it perfect for all manner of sourdoughs, buns or pastries for every morning dish.

Magimix Vision Toaster £145 | \$300 magimix.uk

Coffee just got better

A reimagining of the traditional coffee brewer, the Next Syphon has had its upper chamber redesigned to channel extracted coffee more evenly, whilst the lower chamber's design has been reviewed for quicker heating. The brewer matures coffee tastes really well (if you don't mind open flames).

Hario Next Syphon 5 Cup Coffee Brewer £120 | \$139 hario.co.uk

Never over or under again

The Salter Target is a pretty precise scale - we have used it to measure out one gram of various ingredients at a time. Better yet, this scale actually talks to you as you use it - if you're busy working on other parts of your dish, the scale will verbally announce the weight reading in your preferred weight unit. Salter Target Scale £40 | \$60 lakeland.co.uk

Healthy vogurt in three steps

A quick and easy way of making your own Greek yogurt at home, without adding any of those nasty artificial colours or sweeteners you're likely to find in off-the-shelf products. This little gadget cleans out really easily too and that's usually the main problem with these makers. Easiyo Yogurt Maker

£19 | \$28 lakeland.co.uk

The healthiest way to

prepare your veg

As much as we love boiling and frying our veg, it's actually pretty bad for the vitamin content of the food - it breaks down all that goodness whilst cooking. Steaming doesn't, however, and is a great way of highlighting vegetables' delicate tastes too.

Braun Identity Collection Food Steamer £70 | \$110 amazon.com



1 Ce cream in 30 minutes

Recreate your favourite flavours or come up with some unique combinations of your own – either way, the Digital Ice Cream Maker will basically do all the leg work for you. We prefer to make sorbets, but the machine will let you create ice cream or even frozen yogurt.

Lakeland Digital Ice Cream Maker

£75 | \$112

lakeland.co.uk

The fastest slow cooker that's on the market

Yes, we know – that sounds like a contradiction, but this combination pressure and slow cooker uses two sensors at the top and bottom of the cooking chamber to monitor your ingredients and control the temperature and pressure, which simply cooks your food for you.

Sage The Fast Slow Pro £200 | \$298 lakeland.co.uk No more fuss or worries with flaky pie crusts

The most hit-and-miss part of any sort of pie craft is always the crust, but the Judge pie maker negates that problem. Just cut out the pastry you need with a cutting ring (supplied), put it in the machine, fill with your precooked filling and the pie is basically ready in 10 minutes! Judge Deep Pie Maker £60 | \$90 hartsofsur.com

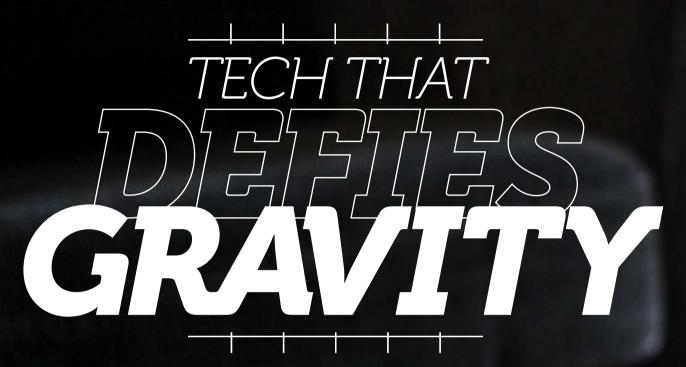
Artisan bread at home

It might be a bit pricier than the other bread makers you'll see on the market, but it yields fantastic results – we're sourdough fiends on Gadget and that's a pretty tough bread to make. The SD-ZB2502 can handle it though and rises a loaf in under two hours.

Panasonic SD-ZB2502 BXC Automatic Bread Maker £150 | \$223 lakeland.co.uk

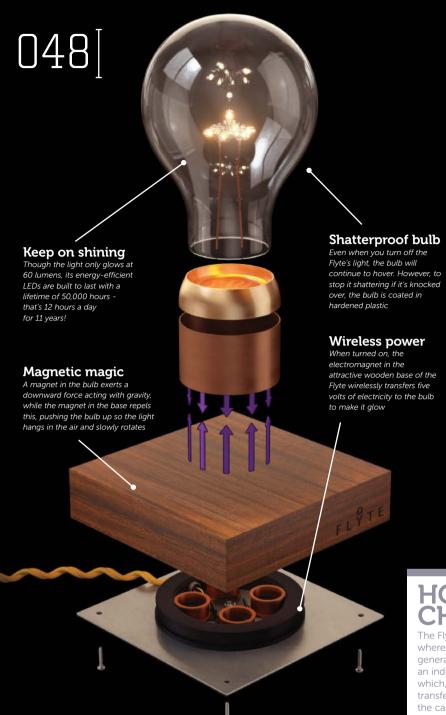
Reliable readings Firstly, this gadget has an alarm clock that you can program to let you know when something's done – always handy, right? It can also be applied to practically anything in the kitchen and let you know its exact temperature with a reading that ranges from -49 to 149 degrees Celsius. Hygiplas Multipurpose Stem Thermometer £12 | \$18

nisbets.com



In the not-far-off future everything will levitate, from lightbulbs to your dining table





LET THERE BE FLYTE

You might wonder why on Earth you would ever need a levitating lightbulb, but the Flyte isn't about need. It's about bringing wonder back into our everyday lives, just as the first electric lights did. The Flyte - like all of the gizmos featured here - works on the same principles as a Maglev train, with the opposing forces of magnets (built into both the bulb and the wooden base) counteracting the downward pull of gravity. Meanwhile, the magnets in the wooden block also wirelessly power the bulb. If this all sounds complicated, rest assured that setting up the Flyte is simple: gently lower the bulb over the centre of the base until you feel a slight resistance, then hey presto - the magnets will hold it in place.

If you think the Flyte sounds like a bright idea, be aware you would actually struggle to read by it's light. It has a maximum brightness of 60 lumens, which is much lower than the 450 lumens given off by a standard 40W bulb. If the fact that this thing floats in midair isn't enough for you and you need a practical purpose to justify its £230/\$350 price tag, you'll be glad to know the wooden base also doubles as a wireless charging mat for all compatible smartphones.

HOW DOES WIRELESS CHARGING WORK?

The Flyte's bulb is powered through a process called induction, wherein an electromagnet with a current flowing through it can generate a current in another body placed nearby. For instance, an induction hob in a kitchen creates an electromagnetic field which, when in contact with magnetic material like an iron pan, transfers or "induces" energy into the metal and heats food. In the case of the Flyte, the coil of magnets in the wooden base – which plugs into your mains – heats the coil in the bulb while floating in the base's electromagnetic field.

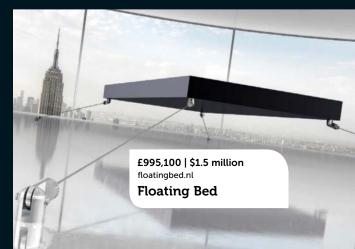
LEVITATING LUXURIES Breaking the laws of physics doesn't come cheap!



The table that looks like a Photoshop trick

What happens when you make a table from floating blocks? The Float side table by Rock Paper Robot is a cube of 27 magnetised wooden blocks joined by magnetic force alone. They still move a little if any force is applied (so don't place your coffee down too hard). It is available now, but will set you back \$10,000.

£6,633 | \$10,000 rockpaperrobot.com Float side table





WHO SAID SPEAKERS HAVE TO LOOK BORING?

We have floating light, so of course the next logical step is levitating sound. Floating speakers are not particularly new, with others like the OM/ONE gracing the market with varying degrees of success, but the Helium Levitate is one of the most affordable options. It uses magnetic levitation technology just like the Flyte, but with different effects. The base is a wireless charging point and the magnets in the three-watt Bluetooth speaker make sure it floats. However, one of the best things it offers is magnetic attraction to anything made of metal, so you can get the party going pretty much anywhere.

THIS SMART TABLE STANDS WITH YOU

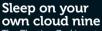
Okay, so this doesn't actually levitate, but it could do a pretty good job of convincing you that it does, as its advanced sensors let you control its height with just a wave of the hand. Hold your hand above the sensor at your desired table height and it will rise up (of its own accord – no lifting required) just that far. Telescopic legs with motors move the surface up and the table gives a jazzy LED light show while it's at it. It also comes equipped with two USB charging points and two AC power points. It truly is the ultimate working desk.











The Floating Bed is not so much a gadget as a piece of art. Again it uses magnetic force to levitate using repelling magnets built into the bed and the floor below it. Invented by Janjaap Ruijssenaars (a Dutch designer), who claims his inspiration was 2001: A Space Odyssey, it will cost you around \$1.5 million.



A carpal-tunnel fighting mouse that floats

Having entered pre-production in 2013, but not available at the time of writing, the BAT computer mouse by Kibardin was hailed as the antidote to carpal tunnel syndrome. Magnets work here once again, making the wireless mouse float above its 240mm diameter base. It looks cool, but its health benefits are yet to be proven.

Price TBC kibardindesign.com

BAT levitating mouse

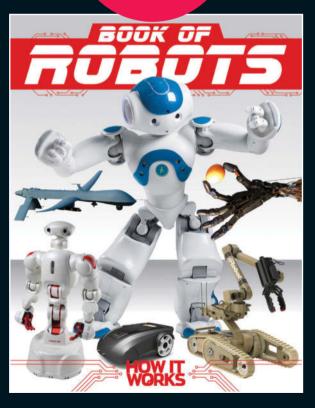
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054 LEVEL UP YOUR GAMING KIT

CHOOSING THE RIGHT DISPLAY

Back in the day, you could just set up a CRT monitor with your Master System or your Nintendo 64 and be done with it - nowadays, it's all a bit more complex. Do you go for a projector that'll let you play on huge surface areas or do you opt for an LED for that deep, satisfying colour? Do you invest in a multipurpose monitor or splash out on an OLED curved screen that really sucks you into the gaming world?

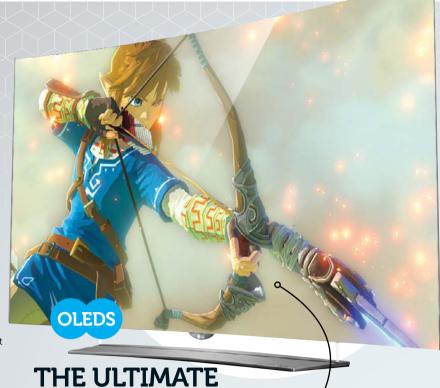


AFFORDABLE HD PICTURE QUALITY

If you're after a fantastic quality TV and you're on a budget, you can't go wrong with an LED LCD display. Typically these televisions have a bright display profile, making it perfect for HD TV and videogames, but you'll want to ensure the model you're interested in has a low-lag response time.

Samsung UE48JU7000T £1,115 | \$2,500 | samsung.com

MONITORS



THE ULTIMATE WAY TO GAME

If you can afford it, OLED is absolutely the way you want to be playing your games. Thanks to its self-illuminating pixels - as opposed to using a backlight like in an LED TV - the OLED set will deliver the deepest blacks, incredible clarity and a fantastically crisp picture.

LG 55EG960V £2,500 | \$4,000 | lg.com

A DYING BREED OF GREAT TVS

Plasma has long been the videophile's choice, thanks to its incredibly deep black levels, though many manufacturers seem to be discontinuing its lines in favour of the cheaper to produce LCD displays. Plasma will give you better quality across the board, but it might be a bit harder to track down nowadays.

> Panasonic VIERA TC-P60ZT60 £3,000 | \$2,250 | panasonic.com





PROJECTORS





DON'T FORGET ABOUT THE HARDY MONITOR

While they might not be typically as sexy - or as large - as the conventional television, monitors are perhaps one of the best devices out there for gaming. Though unless you're willing to pay out the big bucks, expect to make a hard choice between refresh rate and picture quality.

AOC U3477PQU £600 | \$1,000 | aoc-europe.com

BIG-SCREEN

If you have the space and the money, then you can't go far wrong with a projector for the ultimate gaming experience, but we can't stress those two points enough! You will need a lot of wall space to handle the image and a quality projector that will really set you back - as will any replacement bulbs needed and the general upkeep.

Sony VPL-VW300ES £2,680 | \$4,000 | sony.com

THE SOUND OF THINGS TO COME

It's generally agreed that games are best played on headsets, rather than on speaker setups. Why? Because there's a lot of detail in the audio design of games that gets lost when the sound is being pumped out of five different speakers scattered all over the room. For a long time, cans were the ear-warmers of choice for gamers, but recently, there's been a new contender to this sonic throne.

SURROUND-SOUND
GAMING

Traditional surround-sound setups are obsolete. With the rise of sound bars and the sharp decrease in price (and rise in quality) of headsets, there's really little need to clutter your living room floor with wires and complicated setups anymore. Looking for an easy solution to get fantastic audio? Then give one of these a try.



TRITTON Katana HD

Billed as the world's first HDMI-powered gaming headset, Tritton's Katana HD setup uses wireless connectivity and 7.1 DTS surround sound to bring you some of the best audio available to gaming enthusiasts. HDMI is a real step up above optical inputs, as this previously limited headsets to 5.1 channels of compressed audio.

£180 | \$250 | trittonaudio.com

Turtle Beach Elite 800X

Combining a fully wireless, lightweight design and DTS 7.1 channel surround sound, the Elite line from Turtle Beach is a real glimpse at the future of gaming audio. Of course, you will need to buy it at a high price, but you won't be disappointed with the results and you'll never want to stop playing again.

£250 | \$300 | turtlebeach.com



BLUETOOTH VS WIRED?

The common perception on headphones is that wired is better than wireless every time, but that's starting to become untrue: thanks to advances in codec technology, Bluetooth audio streaming is getting better and better, and now (unless you have *incredibly* high-quality source audio) you can barely notice the difference at all. Therefore wireless headsets are better for gaming than wired ones, simply because of the convenience factor.



A CHALLENGER HAS ENTERED THE RING

When it comes to gaming in a shared space, it's well worth considering the purchase of gaming headphones. Thanks to the likes of Tritton and Turtle Beach – to name but two – there are plenty of over-the-ear options to bring you into the game (and to keep others around you out of it). However, Sony has just changed the game with its in-ear headphones; delivering crisp stereo sound directly to your ear holes alongside noise-cancelling technology and an in-line microphone to get in on those *Destiny* bants. Used easily with mobiles and tablets, Sony's in-ear headphones are a versatile and impressive alternative to bulky cans.



£78 | \$120 sony.com

Sony PS4 In-ear Stereo Headset

056 LEVEL UP YOUR GAMING KIT

A PC GAMER'S BEST FRIEND

When it comes to PC gaming, it doesn't matter how big your graphics card is or how dope your casing might be, because it's all about that keyboard. Your keyboard is the tool you'll spend most of your time with, so it's well worth putting down Overwatch and doing some serious research instead. When it comes to mechanical keyboards, it doesn't get much better than the K70 from Corsair. The keys feel incredible and are insanely responsive. The entire thing lights up too – what more could you ask for?

CHOOSE YOUR WEAPON WISELY

When it comes to choosing the right keyboard, you can never spend too much time or money deciding on your investment. In essence, there are two types: mechanical and membrane. This refers to the type of switches hidden underneath the keys. You'll no doubt be familiar with membrane keyboards – these are fairly standard, comfortable and often spongy. Mechanical switch keys, on the other hand, offer very responsive action and they sound great to click in as well. Ultimately it comes down to choice, but it's worth investigating both.

Choose your key switches

Corsair lets you (essentially) decide how clicky you want your keys to be. The Cherry MX Reds are really smooth, the MX Blues are clacky and the MX Brown occupy a middle ground that we highly recommend

Ergonomical

Corsair includes a replaceable wrist rest and two feet stands near the front – in addition to the back two – for extra comfort

Coloured keys

Nothing is more awesome than a glowing keyboard, right? The K70 has three brightness levels to suit personal preference

Programmable keys

The K70's on-board memory remembers what you program without having to mess around with external software, perfect for key-bind heavy gaming

£100 | \$120 corsair.com Corsair Vengeance K70 Mechanical Gaming Keyboard

Rapid refresh

This is ready for anything with a 144Hz refresh rate and super fast 4ms response time; there's no motion blur to be found



Nvidia G-SYNC

Do you own an Nvidia graphics card? Good news, this monitor supports G-Sync, which synchronises the monitor's refresh rate to the GPU render rate providing the smoothest and fastest gaming experience imaginable

Beautiful screen

This 27-inch (2560 by 1440) Quad HD screen will deliver stunning, high-quality images, all in widescreen too

Get connected

This monitor is equipped with five superfast USB 3.0 ports, providing enough room to connect all of your devices

THE **BEST PC GAMING MONITOR** ON THE PLANET

Buying a monitor can be tricky business. While you would usually have to make a decision between an excellent refresh rate or picture quality, this is no longer a concern thanks to Acer's fantastic new IPS screen. Boasting a 144Hz refresh rate (the first of its kind in an IPS screen), Nvidia G-Sync support, not to mention a stunning, balanced and vibrant picture quality, this is well worth every penny. Buying a monitor should be considered a long-term investment and if you're serious about gaming on your PC, this should be top of the list – besides a new graphics card, of course.



LET'S PLAY ESSENTIALS



Logitech Pro C920

Record full HD videos quickly and easily with this superb camera from Logitech, perfect for your Let's Play streaming pursuits.

£90 | \$120 | logitech.com



Razer Seiren Pro

It doesn't matter if you're recording YouTube commentaries or chatting away on Twitch, this is one of the best pro gaming microphones available. £230 | \$250 | razerzone.com



Razer Kraken Pro

Used by the YouTube elite, this is a versatile headset with a decent quality microphone for those times your main one fails you. £70 | \$100 | razerzone.com

WHAT TYPE OF

THE SPACE CADET

When it comes to space exploration, there really are only two major contenders right now. Elite Dangerous (£30/\$40, elitedangerous.com) is out now and expanding in the new year to let you venture down onto planet surfaces and Star Citizen (£35/\$55, robertspaceindustries.com) is currently in a playable Alpha build, giving pilots the opportunity to experience the game as it is built around them over time. While the games have their similarities, Elite Dangerous is the one to opt for if you want to play right now, though Star Citizen is far more ambitious.

Either way, you are going to want to upgrade your control input from a standard mouse and keyboard support. If you want to feel like a real space cadet, you are going to want to go HOTAS. That is to say, get yourself a Hands On Throttle-And-Stick set up. The Thrustmaster H.O.T.A.S. Warthog (£250/\$300, thrustmaster.com) is the best, offering a sturdy, full-metal body.

THE **ESPORTSMAN**

Unless you've been hiding out for the last few years, you've probably noticed that MOBAs (such as *League Of Legends, Dota2* and *Smite*) are huge. People earn millions playing these games.

You're going to need an excellent mouse as you'll want full control. The Razer Naga Hex (£70/\$480, razerzone.com) is designed for MOBA and action RPGs with its six action buttons, optimised mechanical thumb buttons and innovative design that will last you 10 million clicks. You'll want to pair this with a great keyboard: the Razer Orbweaver (£115/\$130, razerzone.com) is a small and powerful keyboard, featuring mechanical switches and 30 programmable keys.

Teamwork is paramount in MOBA games, so you'll want a reliable microphone and you might be better off opting for a headset and microphone combo such as the Tritton Kunai (£40/\$60, madcatz.com) for convenience in the heat of battle.





THE ROCK STAR

god, then you'll want to get yourself Guitar

If you envision yourself as a living rock



ER

ARE YOU?



THE WANNABE PILOT

Have you ever dreamed of flying a commercial airliner? Then you're probably aware that the PC space offers plenty of opportunities to clamber into the cockpit of planes and fully simulate a real experience.

Of course, this isn't going to be cheap. If you're dipping your toes into the simulation for the first time, the Saitek Pro Flight X-55 Rhino H.O.T.A.S. (£160/\$200) offers precise

control over your plane, while an LCD screen can let you monitor radio stack information. Want to get serious though? The Saitek Pro Flight Simulator Cockpit (£4,450/\$5,000, madcatz.com) offers an unparalleled and unmatched flying experience. It comes equipped with a ten-flight instrument panel, while an array of radios, switches and dials let you really feel like you're in the cockpit.



THE RACER

If you're serious about getting behind the wheel of the most incredible and powerful vehicles ever designed by man, you'll want to look no further than the Pro Racing Force Feedback Wheel and Pedals (£350/\$400), which features force feedback to really make you feel like you're in the driver's seat. If feeling the rumble through your wrists isn't enough, pair this awesome racing wheel with the dedicated RC-5

Pro Gaming chair (£120/\$150 gioteck.com) to feel the shockwaves rock your body too.

Of course, some people aren't fans of the racing wheel setup as it can be space consuming and that's why Microsoft has also developed a fantastic alternative. The Xbox Elite Wireless Controller (£119/\$150, xbox.com) offers a huge array of customisation for eager players, though it's the back paddles that'll excite racing fans.



THE **MMO** WARRIOR

If you're going to find yourself staring at the screen for hours at a time, raiding with your buddies and trawling for the best loot in games like *World Of Warcraft*, you'll need the right gear.

A multipurpose keyboard should be your first call. Razer's expert MMO gaming keyboard Anansi (£90/\$100, razerzone.com) is highly recommended; it has 100 programmable Hyperresponse keys and the option to record macros on the fly. Pair this with the Naga Epic Chroma (£115/\$130), designed for MMOs with its 19 optimised and programmable buttons, and you'll have no problem taking on the toughest bosses.

MMO gaming is all about comfort, so it's also worth considering a chair that supports the back. Arozzi chairs come highly recommended from eSports teams around the world and the Monza (£130/\$180, arozzi.se) has been ergonomically designed to ensure you're comfortable for those long sessions.





WINARAZER GAMING SWAG BAG

Up your game with an elite headset, advanced gaming mouse and carry case

Thanks to our friends over at Razer, we have a boof goodies to give away so that you can upgrade



Thanks to our friends over at Razer, we have a bundle of goodies to give away so that you can upgrade your gaming setup. The Razer Mamba gaming mouse (worth £135) has a world-class precision sensor with 16,000 DPI and offers Adjustable Click Force Technology for personalised click feedback. The Razer Kraken Mobile headset (£80) brings powerful audio and an in-line microphone to iOS and Android gaming, with large 40mm drivers for rich sound and plush earpads for maximum comfort. Finally, the Razer Tactical Pro Backpack (£134) is big enough to carry all of your gaming accessories and is rugged enough to keep it dry thanks to a water-resistant ballistic nylon exterior. As well as a section for carrying a 15-inch gaming laptop and a dedicated headphone holder on the inside, the rucksack has five more pockets to safely store everything else you could possibly need.

FOR YOUR CHANCE TO WIN ALL OF THESE RAZER GOODIES, ANSWER THE FOLLOWING QUESTION

WHAT IS THE DDI OF THE RAZER MAMBA MOUSE? A. 16,000 B. 60,000 C. 6,000

Enter today at www.gadgetdaily.xyz

TERMS AND CONDITIONS The closing date for entries is 12 February 2016. Please be aware that answers must be submitted to the above website only. This competition is open to residents of the United Kingdom and Ireland only. Imagine Publishing has the right to substitute the prize for a similar item of equal or higher value. Employees of Imagine Publishing (including freelancers), their relatives or any agents are not eligible to enter. The editor's decision is final and no correspondence will be entered into. Prizes cannot be exchanged for cash. Full terms and conditions are available upon request. From time to time, Imagine Publishing or its agents may send you related material or special offers. If you do not want to receive this, please state it clearly on your competition entry.





Drive 60 cars from the 1960s to modern day!



Race 16 players in the exhilarating Rallycross!



Over 300Km of 100% accurate courses!

Out January 29th 2016

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062 Turn Your Home Into a weather Station

You probably check the weather forecast every day to see what sort of meteorological maelstrom you're likely to encounter should you venture out into the open, but have you ever considered the atmospheric status inside your home?

This might seem like an odd question, but the indoor air in many homes can be more hazardous and polluted than the average city street. Usually you can solve this problem by opening a window, but how do you measure the air quality in your home to begin with? Thankfully there's a gadget for that.

The Netatmo weather station is a smart environmental hub for your home that comes with a frankly ridiculous number of sensors crammed into its sleek aluminium body. Together with its range of additional modules, which measure outside factors like rainfall, air pressure and so much more, the weather station can give you incredibly accurate and detailed data on the status of your home's ecosystem - inside and out.

If air quality is reaching dangerous levels, it will notify you and provide information on everything from carbon dioxide levels to humidity. The sound levels in your home can also be browsed in the form of charts and graphs in the Netatmo app.



ANY WAY THE WIND BLOWS

You'll soon be able to record data on everything from gusts to gales thanks to the Netatmo Wind Gauge. Its ultrasonic transducers convert airflow into minute vibrations and enable the device to give strength and directional readings in a variety of different metrics.



Sound meter

You'll probably already be aware if your house is noisy, but the weather station gives you an exact decibel count

Temperature and humidity

The weather station can give live updates on the temperature and humidity levels in your home, accurate to within 0.3 degrees Celsius (0.54 degrees Entrepheit)

Barometer

The outdoor module includes a barometer and uses it to make accurate weather predictions based on changes in the surrounding air pressure

CO2 sensor

The weather station's carbon dioxide sensor gives you an instant status report on your indoor pollution levels. Just press the top

£139 | \$149

Netatmo Weather Station

TURNYOUR HOME INTO A WEATHER STATION

Get a personalised forecast come rain or shine





Turn your house into a smart home with Flic



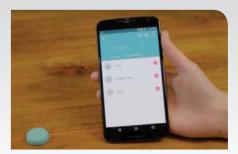
1 Get the app

The first thing you need to do is grab the respective app from either the iOS App
Store or the Google Play store. You need to be running iOS 8.1 or Android 4.4.

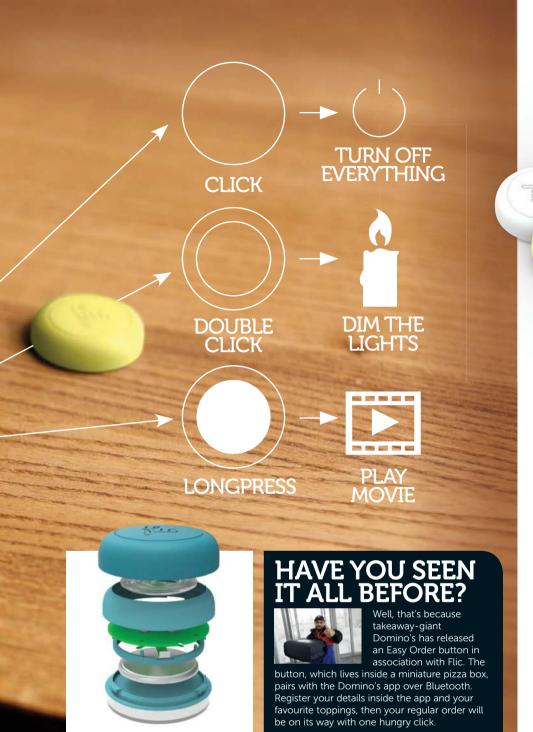


Click the Flic you want to add once

Qair your FlicMake sure you have Bluetooth activated on your device. Load up the app and create an account. Click your Flic and tap the + icon in the bottom-right corner to pair your Flic.



3 Set an actionPress Pair when asked to do so. Click the + icon next to Click, Double Click or Hold to set up an action. A list of popular actions will appear, but you can search manually.

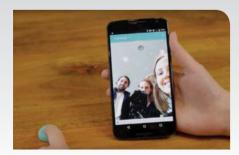


FLIC: THE WIRELESS SMART BUTTON 055

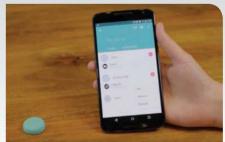
Automation is going to be huge news in 2016. It has already become part of your home, whether that be a Nest thermostat, a WeMo plug socket or a Philips Hue light bulb and Apple's HomeKit feature will take this technology to the masses.

One of our favourite automation services is IFTTT, an app that lets you build recipes to automate tasks and the Flic: The Wireless Smart Button is essentially its hardware version. The tiny magnetic button can be programmed to control various functions when paired with either your iPhone or Android smartphone. The possibilities are virtually endless, especially when you take into consideration that the Flic can be triggered in three different ways: click, double click and hold. So at home you could turn the lights off with a click, raise the room temperature with a double click or turn on your favourite playlist with a longpress. It could even be used to take a picture, phone a loved one or ensure you never lose your phone again by clicking the Flic to ring it.

You can place the button wherever you think most appropriate thanks to its reusable, double-sided adhesive and, amazingly, its battery life lasts an incredible



Q4Use your Flic
Choose your favourite and select Add
Action. Then activate your action by clicking
your Flic once. The action springs automatically
into life, in this case taking a photo.



5 More commands

Setting up more actions for other commands is as simple as repeating the process. You can also edit or remove your actions by touching the + button at any time.



Place your Flic
Because of the brilliant adhesive
backing, you can place the Flic anywhere you
want, just take off the protective film first. You
can even attach a clip to make it wearable.



Want to try virtual reality, but can't wait for, or afford, the Oculus Rift or Microsoft HoloLen? The good news is that you have a surprising number of options for under £100. The biggest and cheapest name in budget VR is Google Cardboard. Literally made of cardboard, this headset is little more than a pair of lenses and container to pop your smartphone in. This sounds stupid, but it works. Your phone is already fitted with the necessary gyroscopes to track your head movement, which works with the stereoscopic lenses to fool your brain into thinking you're viewing 3D.

Well that's at least how it's supposed to work, if you have 'normal' vision. If you wear

glasses, wearing a VR headset with them on is uncomfortable, but trying to enter the Matrix without them is even worse. Whether your long- or short-sighted, this results in a blurry, almost nauseous experience

This is where budget VR upstart Homido comes into its own. The headset comes with a choice of three different lenses – far-sighted, near-sighted, and normal vision. You can also adjust various knobs to move the lenses further away from your eyes and even move the lenses farther apart from each other. Even if they don't match your glasses prescription exactly, bespectacled users will be amazed at how much more in focus virtual reality

becomes - suddenly you understand what all the hype's about!

Priced at £50, Homido costs a lot more than Cardboard, which starts at £5 depending on the model you buy. But even if you don't have bad eyesight, Homido makes it worth your while with a more robust case and added padding, making the headset more comfortable to wear over extended periods of time. Beyond that there isn't much difference. This sound like a criticism but it's not. As Homido works in the exact same way as Cardboard – by inserting your phone – it has access to the same amount of apps (roughly 200 on Android), but with added comfort.





Choose your lenses
Pop each lens into the cones that best suit your eyes, then clip the cones into the inside of the headset so they don't move.



Q2 Add your phone
Slide your smartphone under the clip
on the front of the headset. Position it so the
screen is all you can see through the lenses.



Make it fit
Use the red dials on the outside of the headset to adjust the focus. Make sure the lenses are not too close to your eyes.

BUDGET VR HEAD-TO-HEAD



"Suits almost everyone owing to the changeable lens cones"

Homido's virtual reality is simple and easy to use. It suits almost everyone owing to the changeable lens cones and the ability to work with almost any smartphone. However, compared to pricier VR headsets, the quality isn't great. Double vision is a regular occurrence with the straightforward lenses, which does you no favours when trying to watch 3D or 360-degree video. But for the money, it's not too shabby at all.



GOOGLE CARDBOARD

A low-cost, acessable entry point into VR for just about everyone, Google Cardboard is a casing that'll house your phone and work with pretty much any model of mobile. The shell itself costs next to nothing – in fact, Google has been giving hundreds of the headsets away for free as part of certain campaigns. The phone simply slots into the shell and you can download a hub that'll let you explore a variety of VR experiences: some of them for free!

dodocase.com | £22 | \$18

SAMSUNG GEAR VR

A slightly higher point of entry here, but worth it: the Samsung Gear VR is the little brother of VR pioneer brand Oculus and has some impressive things to offer because of that partnership. A Samsung Galaxy Note 5 or Galaxy S6 acts as the processor and the viewing screen, whilst the until itself contains high field-of-view lenses, as well as a high latency sensor that's better at tracking your movements – a vital part of VR. Low latency tracking can lead to pretty bad motion sickness.

Samsung.com | £80 | \$99.99

funtee C (,co.uk

EUROPE'S #1 MOVIES, TV AND GAMING MEMORABILIA STORE











WHY EVERYONE WANTS A SLICE OF THE

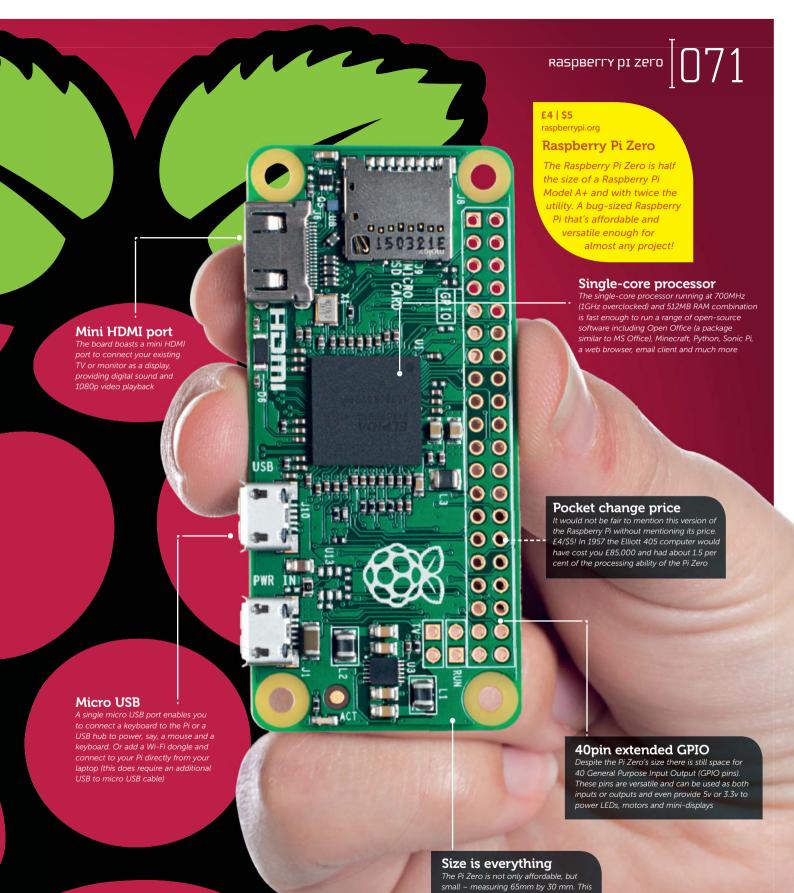
The mini computer that costs pocket change

Since its release in February 2013, the Raspberry Pi has become the UK's bestselling computer. That's right – computer, not pie! The purpose is to promote the teaching of computer science and coding through a device that is affordable, accessible and fun. However, it has become a popular computer amongst, coders, hardware enthusiasts and geeks too. Presently the Pi family has expanded to include seven different versions of the computer, which meet a range of requirements and abilities from beginners to professional.

What is it that makes this computer so very different from, say, your tablet, laptop or phone? Most significantly, it is the cost. You can buy the highest specification model, the Raspberry Pi 2, for less than £30/\$50. Yes, you read that correctly; a credit-card-sized computer for the same price as a meal out for one. This desktop-style computer can run a range of programs and is fully hackable, which makes it ideal for tinkering, creating your own projects or just playing around with, without a fear of breaking the bank.

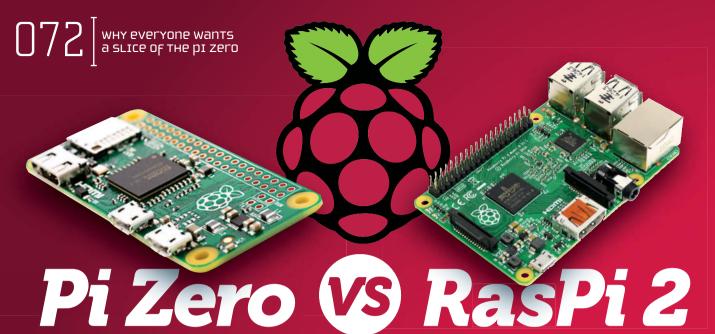
But the Raspberry Pi Foundation like to push boundaries and late last year they launched the Pi Zero. This new model costs just £4/\$5, giving even more people the opportunity to afford a computer and start coding. It's no surprise that within days the Pi Zero sold out across the UK.

The Zero is a stripped-down version of the original, but it runs the same programs and is three times faster. Read on to learn more about what the Pi Zero can and can't do, how to use it to hack Minecraft and discover more projects.



makes it suitable for remote access or as

a computer on a key ring



price: £4 | \$5

Processor

price: ±30 | \$35

A single-core processor that's capable of running most Pi-related software out there. It boots to the command line in just 27 seconds



A quad-core processor running at 900MHz, which can be overclocked up to 1GHz. This is six times faster than the original 2013 model and you will notice a difference in boot-up time as it's more suitable to a desktop-style computer. It boots to the command line in 14.5 seconds

Pi camera and display

No camera or screen slots (yet)



Connect the official Pi Camera and take pictures or videos. You can use the camera as part of a project, such as motion tracking. The Pi Display enhances your setup, providing a portable screen

Ethernet port

Unfortunately, there is no Ethernet Port on the Pi Zero, which means that connecting to a network uses up the one micro USB port, but connection is still an option via Wi-Fi



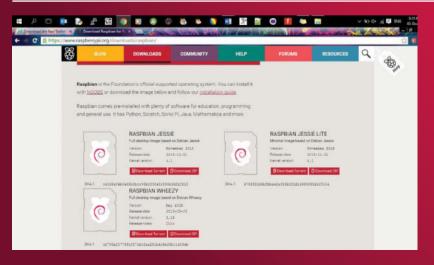
If you require a stable or wired network connection, then the Pi 2 has this advantage with an onboard Ethernet Port. This makes downloading software and updates much more reliable

USB ports

The one micro USB port makes this Pi Zero a slim and suitable model for embedding or hiding within your coding projects. This is great for remote or headless access to your Pi



If you require more USB ports, then the Pi 2 model boasts four, this makes it suitable as a desktop computer. The downside is the profile is no longer as slim, but it is still credit-card sized



GETTING STARTED WITH YOUR RASPBERRY PI

Before you power up your Raspberry Pi, download the operating system to a microSD card. A class four or ten card with at least 4GB is suitable. Head to the downloads page on the Raspberry Pi Foundation website and download the starter NOOBS (New Out Of The Box Software) image.

Plug the card into your laptop and unzip the image. When complete, remove the card, insert into your Pi and add the power. The Pi will boot to the command line. When prompted, enter the username **pi** and the password **raspberry**. Then type **startx** to load the <u>graphical version</u> of the operating system.

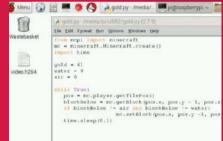
HACK MINECRAFT WRITE YOUR FIRST PROGRAM

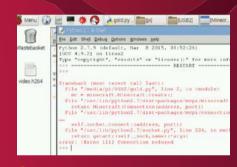
Minecraft is a game similar to Lego, only virtual. The player takes on the role of Steve who combines blocks to create new blocks, which can be used to build structures within the world. The Raspberry Pi operating system comes with Minecraft preinstalled and is adapted to work with the Python and Sonic Pi coding languages. This makes it exciting and creative whilst facilitating coding skills and knowledge. In this beginner's hack, you will code a program that changes each block the player steps on into Gold. Think of it as a simulation of the Midas touch.



"Simulation of the Midas touch"







Open the terminal
At the top of the screen Open the LX
Terminal, type sudo idle. This will open the
Python editor. Click File>New window, which
will open up a new blank window.
Enter the code below:

- from mcpi import minecraft
- mc = minecraft.Minecraft.create()
- import time
- **-** gold = 41
- water =
- while True
- pos = mc.player.getTilePos()
- blockBelow = mc.getBlock(pos.x, pos.y 1,
 pos.z)

pos.z, gold)

time.sleep(0.1)

Extending the hack further
Alter the ID number in line five to
change what the block becomes. For example,
instead of turning everything you touch into
gold, how about turning everything into
melons!? (The ID number Melons is 103, more
block IDs can be found here at goo.gl/WO5VTc.

What does the code do?

Lines one and two import the code to enable Python to speak to Minecraft. On lines five, six and seven you set up the block types. Each block has its own unique ID number, for example, 41 is gold. To find the player's position where they are currently standing, use pos = mc.player.getTilePos() - line ten. This stores the X, Y and Z coordinates of the block on which the player is standing. Next return the type of block that is underneath the player using mc.getBlock(pos.x, pos.y - 1, pos.z). In line 12, check to see if the block is not air or water, (!= means is not equal to, ie the block is not air), if it is neither of these then set the block to gold, mc.setBlock(pos.x, pos.y -1, pos.z, gold), line 13. The while True on line nine keeps the program running in a loop that constantly checks the block you are standing on. This means as you move around the world, the code will check the block you are standing

Run your program
Once you have typed up the code, press F5 on the keyboard. This will bring up a window that prompts you to save your code, call it gold py and click save. The program will try and run, but you will get a connection error because the Minecraft program is not running.

Open Minecraft from the start menu and start a new world. Press the TAB key to release your mouse and return back to the Python editor. Press F5 to run your program. If you receive no error message then you are ready to make some gold. Return to the Minecraft game, start walking around and placing your gold blocks. If you still get an error message then the most common causes are not indenting the lines of code, using a lowercase letter where an upper case is required or misspelling the code. So check your work thoroughly!



PROGRAMMING LANGUAGES

The principle aim of the Raspberry Pi is to encourage you to start coding by reducing the barriers that may stop you. Consequently, it supports a wide range of operating systems and programming languages. Many of these are now being taught and used in schools.

Linux



Linux is a leading open-source operating system. This means it is free to download, free to use, free to modify and share. As a result, users have modified and

created a range of flavours of Linux, such as Ubuntu, Fedora and Debian. The Raspberry Pi operating systems are based on Linux so many commands and codes are compatible.

Scratch



Scratch is MIT's visual language that makes it easy to create interactive art, stories, simulations, games and then share your creations online. It

consists of blocks that you drag and drop, snapping together to create code. It is very visual and user friendly, but don't be fooled into thinking that it is basic.

Sonic Pi



Sonic Pi is a program for creating music with code. Users create sounds, beats and use samples to code a composition. Your music can

be exported to MP3 or shared with others. One of the brilliant features is the ability to live code. Create your music and play it, then modify it in real time by changing your code and hearing your music adapt.

thon



Python is a very accessible programming language that is designed to create programs with as few lines of code as possible. The syntax

and structure of the language make it extremely user friendly. Consider writing a program that prints the statement "Hello World". In Java it would require:

- public class Main {

- public static void main(String[] args) {
 - System.out.println("Hello, World!");

In Python the same output is simply,

- print ("Hello World")

MORE PI ANYONE?

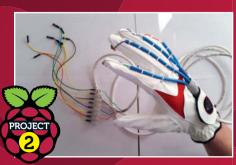
Still want more? Check out these tutorials and projects to further inspire you



Take pictures with the PiCamera

The PiCamera is the official camera board for your Raspberry Pi. This project shows you how to get set up with the camera and take pictures. Further tutorials cover slow-motion video capture and stop animation.

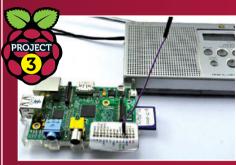
Pi Camera | bit.ly/1keHTEr



A social media glove

The Pi-Glove is the project name to make a wearable social-media glove. You can take a picture, tweet it and then listen to your favourite music, all from a touch of a button that is literally at your fingertips.

The Pi Glove | bit.ly/10l8Kg2



Build and host your own Radio

A simple, but effective hack from Make. This hack explains how you can easily turn your Raspberry Pi into a mobile FM transmitter in order to share all your favourite tunes with those around you.

Pi-Rate Radio | bit.ly/22nqcVi



Hack your lights and turn them on and off with your Pi

Create a Raspberry Pi hack to control a remote plug socket from any laptop, tablet or mobile phone. Turn on your television, lights or whatever you can find that's plugged in.

Pi Lights | bit.ly/1In4ESh



Build a retro-games console

Do you ever get nostalgic about old console games, such as Mario, Sonic and Centipede? Well, you're not alone and RetroPie is the project for you. Create a classic emulator then download and play a wide range of games. Retro Pie | bit.ly/1eio2BZ



Take photos in Minecraft

If you liked the Midas-touch Minecraft Hack on page 71, then check out the Minecraft Photo Booth hack for a similar kind of tutorial. Walk in to the booth, trigger a camera and take a picture – just don't forget to smile! Minecraft Photo Booth | bit.ly/1RDkfzM







Build an alarm clock robot

If you struggle to get up in the morning and have a habit of sleeping through your alarm, then you might need an alarm clock that runs away from you – the act of chasing it will of course get you out of bed! This project is called Rolly Robot and you will need the BrickPi, the Lego Mindstorms adaptor for the Raspberry Pi (by Dexter Industries), as it will enable the Pi to interface with Lego through programming.

Rolly Robot | bit.ly/1BTYljv

"This makes it exciting and creative while teaching coding skills and knowledge"







Act out your Knightrider fantasies

Use a Raspberry Pi to set up your own car computer that's embedded into the dashboard display with multiple screens for your rear passengers. By removing the DVD player from your car and inserting an Xtrons radio, you can use a VGA adapter to give you the ability to play films for your kids in the backseats whilst you make use of the satnav in the front. Check out Derek Knaggs' website (link below) for the full details on how to get your own car computer up and running.

Raspberry Pi car computer | bit.ly/1PkbLMs

Resurrect your old Nintendo

Give your dead NES console a new lease of life using the Raspberry Pi. By completely replacing the internals with a Raspberry Pi, you can upgrade your old NES and play Atari, Sega and Nintendo games once again. The biggest difficulty is in replicating the simple function of turning the NES console on and off with one switch, this is because the Raspberry Pi lacks an ATX-style power switch. Fortunately, this can be circumvented using a Mausberry Circuit and a bit of coding in Python.

RetroNES | bit.ly/1m64g0I

Build your own remote-control car

A Bigtrak is a high-tech toy that can follow a Isimple commands, such as go forwards, turn left and turn right. By replacing the existing circuitry with a Raspberry Pi, you can set up a PlayStation 3 DualShock controller to manage your Bigtrack remotely using Python. There are further adjustments you can make to get even more out of this project, such as connecting up a Raspberry Pi camera and a USB Wi-Fi adaptor to stream videos of your adventures as you drive around and invariably bump into things.

Bigtrak | bit.ly/1JruZJO



HOW IT'S DIFFERENT TO ANY SMARTPHONE ON THE MARKET

Despite the aesthetic similarities, the XDP-100R couldn't be more different to a smartphone (in an audiophile's eyes at least). Right down to the DNA of the device, Pioneer has engineered the XDP-100R to deliver better sound than your smartphone. For a start, half of the interior is dedicated to audio circuitry and an amp, whereas a phone minimalises

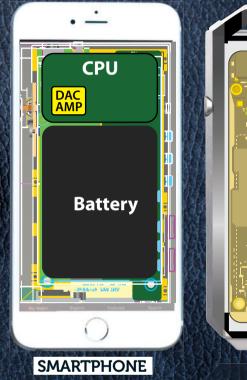
this kind of tech so it can squeeze everything else in. This results in the XPD-100R operating like a separate amp and a player on your hi-fi shelf. Further to that, the power block is distanced from the closed audio loop – meaning you won't get any of that annoying hissing noise interfering with your music or headphones.

DAC

AMP

Batter

XDP-100

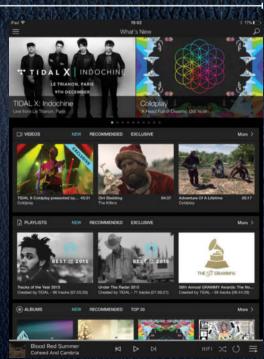


THE TIDES ARE CHANGING

0

Recently acquired by Jay Z for \$56 million, Tidal is a music-streaming service that was launched as a direct competitor to Spotify and iTunes. The thing is, Tidal is a bit different and markets itself at the audiophile – the type of person who is far more concerned with high-definition audio than subscription fees (you can tell as the monthly cost is £19.99 for the good tier).

In 2016, Tidal and partner company Meridian will start offering access to MQA files – short for Master Quality Authentication. This basically means you'll be able to listen to music as the artists intended through the Pioneer, which is uniquely equipped to process these files. MQA music sounds as good through your device as it would if it was coming straight out of the mixing desk of a recording studio. This is thanks to a codec that can transport these usually gigabyte-sized files in packages the same size as MP3 files. It's basically some sort of sonic magic!



THE MUSIC LOVER'S INTERFACE

The interface has been designed for the audiophile too: once in the native player, a single swipe up will reveal the EQ (vital for music fans with hugely variable tastes) and a swipe down will reveal a playlist or album screen that enables you to cue up songs in advance. Handy and intuitive.



CONVERT YOUR VINYL RECORDS INTO DIGITAL MASTERPIECES

Enjoy LP sound quality and USB portability

Vinyl is cool again. After years of obscurity and confinement to musty record shops in Camden, the format has grown in popularity, making a huge source of revenue for media retailers and music labels alike. You can even find vinyl records gracing the shelves of supermarkets again – who'd have predicted that 10 years ago? But in an age of portable technology, LPs and EPs are just a bit... cumbersome. The GPO Attaché intends to remedy the inherent bulkiness of the vinyl format and has reached an aesthetically friendly way of doing so in the process. It can translate physical files into (highly compressed) MP3s, but in this age of convenience, having records you might not otherwise be able to listen to on hand is always a good thing.

The Attaché has two main selling points: firstly, it folds down into a wonderfully presented leatherette suitcase, meaning you can transport the turntable without any of the mechanisms getting damaged (because replacing needles is a *nightmare*, right?).

The Attaché can also record from vinyl straight to USB directly, without having to hook up to a PC or install any software. Because of its size, the internal speakers are pretty low quality and quiet, but if you're buying this as a converter or hooking it up to speakers via the AUX out, playback will be fine.



Hook it up

RCA connectors (that's the red and white stereo plugins you'll find on the GPO) enable you to attach the, um, Attaché to your home hi-fi system for better quality playback £80| \$88 gporetro.com

GPO Attaché

A semi-portable record player that can be carried around like a suitcase with built-in hardware that can let you transfer all of your great vinyls to digital MP3 files via a USB stick.



How to turn your vinyl into everlasting digital



Ready your record
Place the record on the
turntable of the GPO Attaché and
select the manual mode so that the
disc continually revolves.



Q2Place the needle
Place the needle on the
blank outer edge of the vinyl and
then hit the record button found on
the control pad.



Play it back
Let the side of the vinyl
you're recording play all the way
through, then pause the recording,
flip your vinyl and resume.



Plip and finish
Repeat the process for the second side. When finished, replace the needle on the rest, disconnect the USB and enjoy your MP3s!

Not so portable?

Despite its transportable presentation, the turntable can only be powered by a mains connection – it's quite an oversight that you can't use batteries

PRESSING THE COMPETITION

You might think it odd that we're writing about vinyl in a magazine dedicated to hot new tech, but the format is *big* business – the sales of vinyl records were more streaming revenue from YouTube, Vevo, SoundCloud and the ad-supported version of Spotify.



Total revenues \$221.8 million US: first half of 2015

> \$162.7 million

Vinyl LP/EP

YouTube Music, VEVO, SoundCloud, Spotify & all ad-supported streaming music services combined

Turn it up to 11!

The built-in speakers aren't the best quality, but if you just want a player that's capable of pumping out your favourite records in a pinch then they'll do!

Old meets new

The USB slot isn't only for recording



Three-speed playback
The turntable is capable of operating at
33, 45 and 78 rotations per minute –





WHEN YOU SURF!

This inflatable toboggan works like a bodyboard

From the outside it looks like something you might buy at the beach, but once inflated the Airboard becomes a high-speed snow sled that could be the start of an entirely new sport. Just lie down on the board, grip the handles and prepare for the ride of your life.

Unlike the traditional solid plastic or wooden taboggan, these inflatable boards enable greater control over which direction the sled moves and when it slows down. The board is filled with 130 litres of air and as you shift your weight, you change the pressure inside.

Just like a pair of skis, when a rider applies weight to the edge of the board it loses speed. As the sled loses speed it then becomes easier to turn and allows the rider to slalom from side to side rather than zip down the hill at full pelt.

So how does it measure up to a low-cost plastic sled? Well, the world record speed for a plastic sled is only 29 kilometres (18 miles) per hour, but the lightweight Airboard can reach at an incredible 123 kilometres (77 miles) per hour. Please beware if you attempt to break this record you may also break a bone!

£250 | \$370 airboard.com

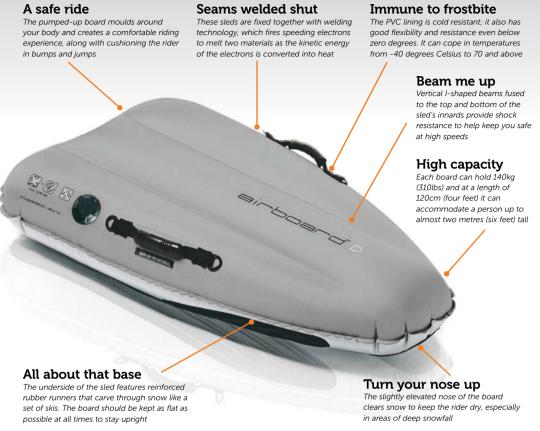
Airboard Classic 130-X

Unlike any other snow gear, the Airboard offers a downhill ride at an unbelievable speed. Control the board with your own movements unlike a traditional sled.

YOUR OWN PERSONAL ROLLERCOASTER These bodyboards are coated in a layer of

These bodyboards are coated in a layer of polyurethane, the same rubber that is used to make rollercoaster wheels. Not only does it prevent punctures, it also performs well under high pressure and is designed to slide.

Wind your way down the slopes with the Airboard Classic







Without the pump it would take over 40 dizzying puffs to inflate the sled, but the compact and cold-resistant pump manages it in just two to three minutes.



Meet the Business card You bon't need to read

BUSINESS CARD YOU DON'T NEED TO READ

Moo NFC Business Cards+ download contact details to your phone with just a swipe

£24 | \$30 (20 cards)

Moo Business Cards+

An 8 x 5cm business card that can redirect a phone to any website address you choose, the Moo Business Card+ is the ultimate tool to share all your professional contact details.

LIKE

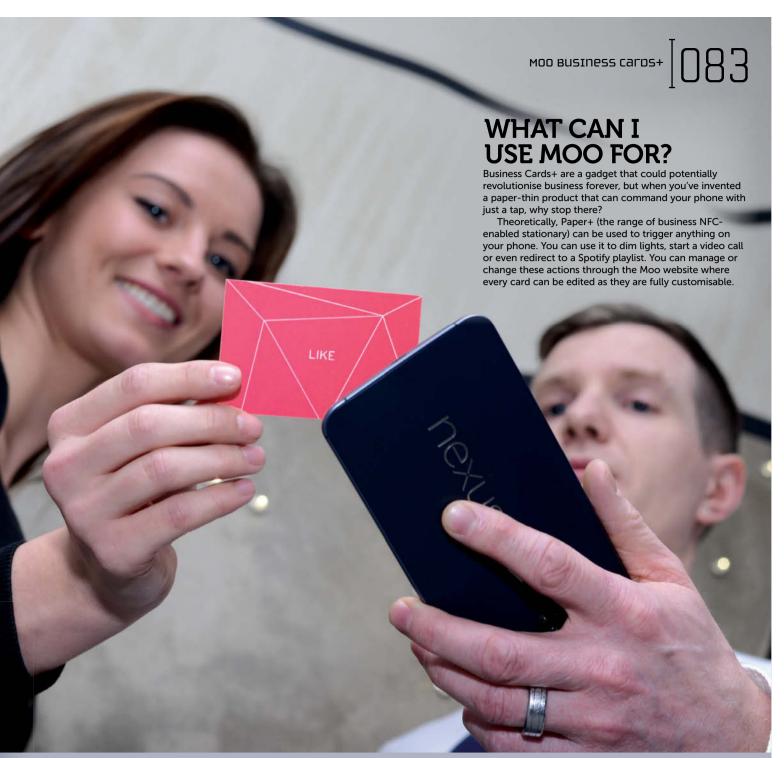
The chances are that if you've ever recieved a business card, you will probably lose it before you have had chance to save the all-important contact details that are on it to your phone. Worse still, you know that even if you've spent a fortune on eyecatching cards and spent ages glad-handing clients, they've probably lost your card just as quickly. Enter the Moo Business Cards+.

A mouthful to say, but instantly useful, these high-tech cards contain an NFC chip that is able to send your contact details to your customer's phone. Simply scan the card against the back of the client's Android or Windows phone (it doesn't work with iPhone) and the details will appear in their phone's contact list.

Don't fancy sharing your phone number? Why not open your company website in their phone's browser instead? If you're a musician looking to get noticed, redirect them to a Spotify playlist. Want to direct customers to visit your shop? Open directions in CityMapper. You can customise all of these options on Moo's website and, best of all, change them at any time.



"Potentially revolutionises business forever"



How to set up your Business Cards+



Create online
Use Moo's pre-existing options or design your own style of card and pick a web address or the contact details that you would like the card to redirect your clients to.



Distribute the cardsGive the cards to anyone with a phone that has an NFC chip; unfortunately, this doesn't include iOS. Swipe the card against the back of a phone and the NFC chip will transfer the data.



Analyse hits
Depending on how you have
programmed the card, the phone will now load
the content you chose to share. You can use
Manage Paper+ to keep track of your hits.

084 READERS SURVEY

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We love writing **Gadget** and hope you enjoy reading it just as much. To make sure we're producing you the best possible magazine, we want to ask you what you would like to see in future issues. By answering just a few guick questions, you could really help us you might even be selected to join our Gadget reader panel! Jack Parsons









Complete our survey to join our Gadget panel and:

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- Test third-party products for review
- Have a chance to meet the **Gadget** team
 - Shape the future issues of the magazine
 - Enter into exclusive competitions















Complete our survey and win your place today www.gadgetdaily.xyz/survey

THIS **KEYLESS PADLOCK**OPENS WHEN YOU'RE NEARBY

Never have to fumble with keys or enter codes ever again

You've heard of smart home, but what about the smart shed? Thanks to a padlock called the Noke (pronounced 'no-key') you can instantly access your favourite outhouse by sending a signal from your smartphone. Rather than struggling to find the right key or enter a complex code, you can unlock it with just a tap of your phone screen. If you're looking for an even more seamless experience, you can even set the Noke padlock to be ready to remove whenever your phone is in range and Bluetooth is switched on.

Chances are, if you own a shed that you're not the only one who needs access to it. Extra users can be added using the app, but you can also limited their access if you want. For example, you can permit them to only be able to unlock Noke on a certain day, time and – if you're using Noke with your bike – location.

As easy as it is for users to set up and use, the Noke doesn't compromise on security. It's weather resistant, made from boron-hardened steel and isn't letting anyone in without the app's say-so. If you're worried about the padlock's battery running out while still locked in place, it's battery is good for a solid year and can be replaced with an everyday watch battery. The future of padlocks is smart, simple, and safer too.

WE'RE GOING TO NEED A BIGGER LOCK

If you're looking to secure your bike, the Noke U-Lock has all the benefits of the high-tech padlock, but with a substantial frame.



Your Noke Padlock can automatically unlock when your smartphone comes within range



firebox.com

£60 | \$89

Noke Padlock

The Noke Padlock ditches traditional keys and combinations in favour of an extremely secure, Bluetoothenabled locking system that's linked wirelessly to your smartphone.



KEEP THINGS UNDER A SMARTER LOCK AND KEY

Extensive app features

The Noke app enables you to share Padlock access with your friends, check its location via GPS and view a detailed log of where and when the lock was accessed



A smarter shackle

The solid shackle on the Noke Padlock can be used as a key in its own right. Pressing out your custom passcode lets you open it without even reeding your phone.



Super-tough exterior

If a boron-hardened steel casing wasn't enough, the Noke Padlock goes the extra mile by featuring antishim technology (a shim is a wedge that's used to jimmy open locked padlocks)

Months of battery life

The Noke Padlock runs using a standard 2032 watch battery and can squeeze over a year of use out of a single battery. What's more, it's extremely easy to replace

Protection from the elements

Every important component of the Noke Padlock is stored internally, protected from water and mud by silicon O-Rings. It can function perfectly at temperatures ranging from -23 to 65 degrees Celsius (-10 to 150 degrees Fahrenheit)

An emergency jump start

It will give you plenty of warning signals, but if your padlock battery does die, you can jump-start it by pressing an external battery to the contact points on its base





Track all your of steps, running routes and even some statistics on how well you can punch with the new Moov Now

This sports band has enough tech in it to track you, train you and talk to you, all you need is a phone to get going. Using the trinity of an accelerometer, gyroscope and magnetometer for 3D-motion tracking to gather data created from your activities, the Moov Now slaps it into the Moov app. This then calculates your speed, distance and impact in real time, encouraging and giving you tips to improve your movement, permitting a truly symbiotic relationship between the app, the hardware and you.

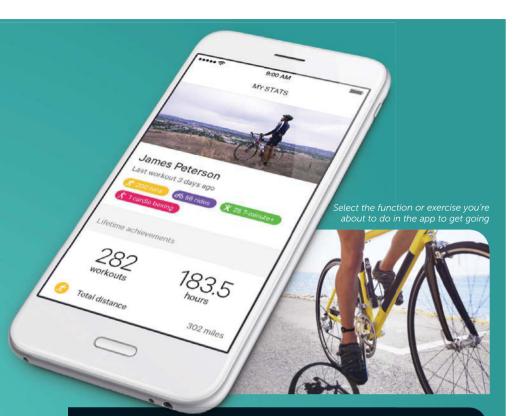
Markedly more compact, both the tracker and the strap look and feel elegant as well as practical. After adopting the waterproofpebble quality akin to Misfit Shine and distancing itself from the plastic-button feel of its predecessor, it has entered the arena of intriguing-looking fitness tech confidently.

The perforated look of the strap makes it look more like a cool silicone net, keeping the tracker in place and enabling ankle attachment for running, swimming and cycling as well as eliminating moisture build up.

The app excels in its training plans, offering advice when running, walking and cycling, but unfortunately to go boxing you need two Moovs. There is no pause button for when you're standing still so your results could be skewed and the app's coach sounds like an overtly impatient robot with a really annoying voice, oh and you have to have your phone with you in order to use any of that... good luck keeping your phone safely in your pocket.



The Moov Now has been designed to attach to either your wrist or ankle



MOOVS LIKE WHAT EXACTLY?

Using an app to go running is great, we do the thing and it tells us the stuff – not much of a challenge to figure out. With the Moov app though, you get more of a gamified experience to your exercise – you are competing against a robot that is egging you on to go further and they will

tell you if you aren't doing it right or if you slack on the pace.

You can also upload your route and an image with statistics to social media, which is a more communal approach to your work out and a great way to document your journey too.

PUSH-BUTTON TRAINING AND SIMPLE SYNCING

Light on your feet

It is basically like wearing a plaster on your wrist — it's just that light! The size, shape and strap make it a barely noticeable addition to your getup

Push to operate

The Moov Now will track your movements in the background, but for specific activities you will need to select a particular function in the app and push the device to activate it

Red means go

The Moov Now doesn't offer any time keeping or alarms, but it does inform you when it's actively tracking you thanks to a nifty red LED that will flash when you press the body





RUNNING THE GAUNTLET



Fitbit Flex

Similar price, similar features... but that's it. Not as involved as the Moov Now and certainly not as robust, it's an ideal starting point for beginners, but ultimately that's where the comparisons end. The Moov Now is better for performance, whereas the Fitbit Flex excels in simply monitoring you.

£80 | \$79 | fitbit.com



Misfit Shine

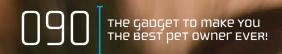
Simple, lightweight, waterproof and has a clock face as well as an activity indicator and a progress indicator. In short, it's a strong competitor to – wait, it's popped out of the strap and I can't find it. Found it! Its magnetic body had it stuck to my chair leg. £45 | \$50 | misfit.com



Huawei TalkBand B2

Definitely the big hitter as this is a hands-free kit as well, but both this and the Moov act well in terms of taking data and synching to your device. Although the B2's TalkBand isn't waterproof, it's still great for running and cycling, but won't track your route – unlike the Moov.

£135 | \$150 | huawei.com



THE GADGET TO MAKE YOU THE BEST PET OWNER EVER!

Keep your dog playing fetch all day with this ball-throwing bazooka

Looking like a retro vase from a sci-fi odyssey, iFetch, the ball-throwing toy for dogs, is fast becoming a pet (and owner) favourite. The iFetch acts as an exercise bazooka for dogs! Your favourite pooch simply drops a ball into the wide end and it will be blasted up to 30 feet (nine metres), giving your good boy a good stretch.

As well as exercising your dog, it's a great way to distract them when you're out at work all day or just not in the mood to play.

At a compact 8-inches (20cm) tall and 9-inches (23cm) in diameter, the iFetch was an intriguing sight for our test subject Buddy, a Lab-Staff cross, and being a rescue dog, he found the mechanical clunking of the ball firing a bit frightening, but once the initial training was in place, he loved it. However, as the balls are 1.5 inches (40mm) big, they were just that little bit too small for Buddy to be left alone with them (he can be a chewer). To compensate for this problem, the manufacturer has recently launched the iFetch Too, aimed at bigger dogs. As well as working with larger balls, it can fire them an extra 10 feet. However, if your little dog is happy with the regular-sized balls, be aware these are slightly smaller than a tennis ball, so you may be reliant on buying replacements from iFetch if the three balls included with the gizmo get chewed up, disappear under the sofa or get lost amongst the hedges for good.

Durable design

The iFetch is made of a durable plastic, so it should be able to withstand a mild chewing. It's cutesy and also non-threatening, though its mechanical whirrings scared our canine reviewer

Play for hours

At home you can plug the iFetch into the mains for endless fun, but if you haven't got the room indoors you can also power it using six C-cell batteries and use it in the garden. On a fully charged set of batteries, the iFetch can fire continiously for 30 hours!



Teach your dog to play iFetch



Teach, train, reward
Get your fuzzy buddy familiar with
iFetch by having it present when you next have
a game of fetch, cuddle time or just have it
nearby in the room that they usually play in.



2 Set the distance
Load the gadget and press the button at the rear of the device to prime it for the distance you want to fire. Cycle through the list to keep things fun and variable for your pet.



The iFetch will fire the ball, your dog will chase it, now just coax them into dropping the ball into the iFetch (harder than it sounds) and repeat the process.



UNLEASH THE POWER OF STEAM

TO IRON YOUR SHIRTS IN <u>HALF</u> THE TIME

Blast away creases with this heavty-duty steam generator

£100 | \$150

braunhousehold.com

Braun CareStyle 5 steam generator iron

The Braun CareStyle 5 is an ironing system that combines both an iron and a hefty steam-creation base for an overall faster and better ironing experience.

Surely an iron is an iron, they all do the same thing, don't they? Iron. If you have never set hands on an iron then you can ask an expert as there's bound to be one in your house. Even if there isn't, it won't be long before there is with the assistance of the Braun CareStyle 5.

The Braun iron has a soleplate that not only provides 360-degree gliding, but blasts even more steam thanks to a strategically placed steam-hole pattern. There is even a steam shot mode that concentrates the steam in one area to get rid of stubborn creases. However, it's how or, more to the point, where the steam comes from that is the real negative here. It may be compact, but the water tank is still the size of a shoe box and is permanently attached. What do you want, smaller or faster?

Digital display

The LED digital display monitors what is happening and informs the user when it's ready. When the steam is up to temperature, the light turns on. Click ECO mode for lower power consumption

No-brainer technology

Smart iCare technology does the thinking for you. It automatically sets the temperature of the iron so it works perfectly on all types of fabrics



Super-smooth soleplate

The Braun soleplate combines twice as hard as stainless-steel construction, a unique curved shape and a special coating for guaranteed 360-degree gliding in all directions

Steam power

The extra-large water tank is for high steam production. The soleplate pattern ensures higher pressure up to 340g/min and finer steam for faster crease removal

Keep it clean

Cleaning is boring. The CalcClean system alerts users to mineral build ups by switching its light on. To clean the tank, fill, shake and then switch on the clean button

Why use a steam-generator iron?

For those that iron the joys of steam are well known, but most irons have a limited capacity with tiny tanks. No one wants a bigger, heavier iron as it would make ironing even less enjoyable. The alternative is to separate the two and that's exactly what the Braun does. It has a separate and dedicated steam generator. This means it can generate a lot more steam when using the steam shoot button, in fact up to a maximum of 340g/min. How does this compare? Well, the average iron manages anything between 40 and 140g/min. How does it get the steam to the CareStyle 5? Through a heavyduty pipe that never gets too hot even with the steam powering through it.

Vertical steaming With pressures of 340g/min, the CareStyle 5 can be used vertically as a steamer to smooth creases from delicate fabrics. Hang clothes and unleash the steam!

Power pipe

The Braun base and the physical iron are connected by a flexible reinforced pipe. The generated steam is pumped through the pipe and is then released via either of the steam buttons

Iron off

A build up of steam will eventually damage the CareStyle 5. To prevent this happening, the iron switches to auto-off mode if the steam button has not been used for 10 minutes

Big tank

The base of the CareStyle 5 contains a water tank and a separate compartment to generate steam. The tank can store up to a maximum of 1.4 litres of tap water

The CareStyle 5's soleplate has been specifically designed to make the tricky parts of ironing easier

SMOOTH AS SILK

The CareStyle 5 makes a big deal of its Eloxal 3D soleplate on the bottom of the iron. The shape was inspired by snowboards, which can be seen in its upward curving BackGlide. Does this help how it moves? Yes it does, but so does its twice as hard as stainless-steel ironing surface, simple yet effective. The soleplate doesn't have vertical edges like conventional irons, but it is the perfect thickness to slide under buttons, glide around seams and tackle zips.



GETTING SHIRTY

What do you iron? Some like to go the whole hog and iron anything that comes out of the washing machine, but who needs to iron out the creases in their pants and socks? Shirts, be them long sleeved, short sleeved or polo, are popular items for crease removal and this is exactly what we did for this test. We tried all the mentioned styles and every time we did the test we managed to get through twice as many items with the Braun as a regular iron. The CareStyle 5 was particularly impressive on polo shirts, only taking seconds with full steam power.



Braun CareStyle 5



Generic brand iron

 $\left[\begin{array}{c} 94 \\ \text{SLOT TO YOUR PHONE} \end{array}\right]^{\text{ADD a microso card}}$

ADD A
MICROSD
CARD SLOT
TO YOUR
iPHONE

Free yourself from the tyranny of an iCloud subscription

With ever-improving cameras, bigger screens to watch videos, and better speakers for listening to music, we're storing more on our phones than ever before. However, it seems phone manufacturers can't (or won't) keep up with the demand for physical memory, instead politely pushing us towards their cloud storage accounts while muttering about subscription fees under their breath. Apple deserves to be singled out for this. After being criticized for years for only offering limited physical storage, they launched a 128GB version of the iPhone 6 – only to axe this option a year later when they announced the iPhone 6S.

But there is an alternative to paying monthly for iCloud, which Android users have enjoyed for years. The Leef iAccess allows iPhone and iPad users to transfer data to a microSD card. As well as backing up files, its also a great way of transferring photos from your digital camera to share them online on the go.



Transfer photos using Leef iAccess



Clip and connect Insert a microSD card into the rear slot of the Leef iAccess, before clipping the device into the lightning port of your iPhone.



O2 Open the app Now download the MobileMemory app from the App Store. Once opened, it will perform a scan to try and find your iAccess.



Transfer files
Choose the Transfer Files
option listed on the main menu.
You can then select what you want
to move across from your phone.



1 Interchange cardsAt any point you can swap microSD cards around. Press on the inserted card to eject it and slot in a new card instead.



Competition is rife for those who want a simple solution to store and transfer their files. Despite this, the market for microSD cards has never been stronger, with more users looking for a secure and cheap way to keep their files with them wherever they go. Here's why we think microSD cards will still be here for years to come.



They're safer than the cloud

While our smartphones are now tailored for cloud storage, the lack of encryption can potentially put your files at risk from snoopers and thieves. Having a physical microSD card enables users to take their most treasured files with them and there is a range of carry cases available to stop you misplacing them.



You can use them everywhere

MicroSD support is so widespread that there is a whole bunch of devices you can use with them. For example, everyone's favourite action camera, the GoPro, contains microSD ports for users to record in-flight footage and then have a simple way of transferring the footage onto their PC or Mac.



Transfer speeds are unbelievable

One of the gleaming features of most modern microSD cards is the incredible transfer speeds that they can achieve when moving files to and from devices. SanDisk's newest Ultra range of microSD cards can move files at 45MB per second. For larger files, this sort of card is a no-brainer to use.

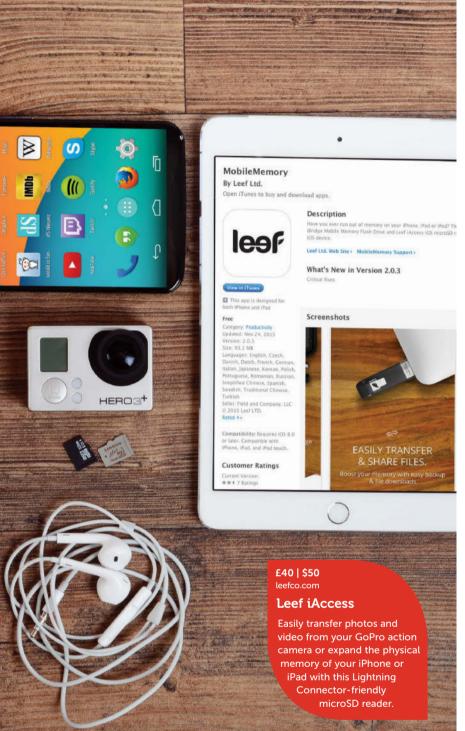


Lots of storage, low price

As more companies are developing microSD cards, prices are at the lowest they have ever been. A standard 64GB card can now be picked up for less than £20, which works out cheaper in the long-term than if taking out a cloud storage account subscription.



Easy to convert 5 Conce you have downloaded your files to your microSD card, you may wonder what you can now do with them. It's simple enough to port them directly onto your desktop computer or even use a microSD adapter to convert them across to a full SD card and expand your options even further.





As well as the iAccess for Apple tech, Android users can buy the Leef Access, which has a microUSB port

"As well as backing up files, its also a great way of transferring photos from your camera"



BOREALIS

EXPLORE THE

We demystify the mind-boggling technology of stargazing

Getting your first telescope is a bit like buying your first car — all of a sudden it gives you freedom to roam, explore and see new sights.

Just like the engine is the crucial part of the car, your telescope's aperture will decide how far you travel into the universe. The bigger the aperture, the more light your telescope can gather and the fainter the object you can see.

At a minimum you're going to want a four-inch/100mm aperture telescope. Don't worry too much about the magnification — it's like the spoiler on your car, it helps you go faster, but you can only go as fast as the engine will let you and it's the same with telescopes. Read on to discover the best telescope for you and how to use it.







5 TAILORED TELESCOPES

Choose the perfect telescope for you

Getting your first telescope is a bit like buying your first car — all of a sudden it gives you freedom to roam, explore and see new sights.

Just like the engine is the crucial part of the car, your telescope's aperture will decide how far you travel into the universe. The bigger the aperture, the more light your telescope can gather and the fainter the object you can see. At a minimum you're going to want a four-inch/100mm aperture telescope. Don't worry too much about the magnification — it's like the spoiler on your car, it helps you go faster, but you can only go as fast as the engine will let you and it's the same with telescopes.

You can use various eyepieces on telescopes to get different levels of magnification

Sky-Watcher

Deep sky objects The large light-collecting area of

The large light-collecting area or the Dobsonian is best for observing deep-sky objects, but it has no computerised components so you won't be able to take images

Astrophotography

This gorgeous glass telescope is best used to see small, faint objects outside the Solar System that other telescopes simply won't be able to see



5 Tailored Telescopes 099

01 EXCELLENT FOR FAR AWAY STARS

With an eight-inch f6 primary mirror, this versatile telescope gulps in light, enabling faint objects to be seen and wide-angle views to be enjoyed using the 25mm (48x) eyepiece provided; more detailed views of the Moon and planets are given by the 10mm (120x) eyepiece provided. Being a Dobsonian it's easy to use, but there's no tracking.

Sky-Watcher Skyliner 200P Dobsonian £275 | \$410 | firstlightoptics.com

2 FOR SPARKLY ASTRO-IMAGES

An excellent choice for those who want a portable medium field (f7) refractor, capable of producing brilliant astro-images as well as being a great visual performer for the skies. Note that the optical tube assembly only is provided, but tube rings and a Vixenformat dovetail bar are supplied so that it can be attached to the mount of your choice.

Starwave 80ED Refractor £400 | \$595 | altairastro.com

13 THE BEST OF THE OPTIONS

This refractor telescope offers sharp resolution views of a selection of night sky objects from the Moon to the planets to deep sky objects including galaxies and nebulae. Portable and practical, the TAL-100RS features engraved aluminium setting circles and manual slowmotion tracking controls.

TAL-100RS 100mm £235 | \$350 | talteleoptics.com

14 THE IDEAL CHOICE

A complete package for the beginner, this four-inch f6.5 achromatic refractor is mounted on a single tine atop a lightweight yet stable tripod. The NexStar handset offers go-to functionality and great tracking. There are good views of both the Solar System and deep-sky objects, but it displays false colour on bright objects.

Celestron NexStar 102 SLT £400 | \$500 | celstron.com

5 HIGH END FOR DEEP SPACE

This six-inch reflector has some high-end features despite its low price including a cooling fan, a dual-speed Crayford focuser and a 10 by 50 finderscope. This one isn't supplied with a mount or tripod, however, suitable accessories are available. When attached to an equatorially mount, this is a great instrument for deep-sky observing and astro-imaging.

Altair Astro 150-SS £245 | \$366 | altairastro.com



SEE MOUNTAINS AND IMPACTS ON THE MOON

The Moon is an object with which we are all T familiar; however, there are particular ways to observe it that will make your time spent looking at it more worthwhile.

Everyone has noticed the phases that the Moon passes through – from the thinnest sliver to a bright full Moon. The starting point for the cycle of the Moon's phases is when it's new, that is to say when we can't see it as it's between us and the Sun. As it moves along its orbit around the Earth the phase increases as the sunlight illuminates more and more of the disc and it can be seen later in the evening. Once the Moon is one day old it is easier to see and over the next few evenings you'll also perhaps notice another phenomenon that's

easy to pick up with just your naked eyes called Earthshine. This is where the part of the disc of the Moon which isn't illuminated by the Sun is still visible, glowing faintly due to light being reflected off the Earth onto the Moon and then back to us again. This is sometimes known as the 'old Moon in the new Moon's arms'. Using your telescope, you'll notice that you can see features which weren't easy to spot with just your eyes. Darker and lighter areas suddenly stand out and you will almost certainly see some craters. You'll notice there are shadows cast by the mountains and crater walls that make these features really stand out.

As the Moon phase increases you will be able to see more of the surface and

the so-called seas, properly termed Mare (pronounced ma-ray from Latin meaning sea), stand out as darker regions. Run your gaze around the edge of the Moon and you'll spot it isn't smooth, but broken with the jagged edges of mountains. Take a look at the terminator line, the division between the light and dark area of the surface, as this is where you can see the longest shadows and some of the most interesting effects. Crater walls cast long shadows where peaks can catch the sunlight. You could even have a go at taking pictures. Point a camera into the eyepiece of your telescope and see what you get, but if you want to do it more seriously, you will need a DSLR camera and a telescope adaptor.

SPOTTER'S GUIDE TO THE SOLAR SYSTEM



MARS

The red planet shows a striking colour in any instrument thanks to its iron-rich soil. Larger telescope apertures will reveal the subtle shades of the major surface features, such as the dark and rocky Syrtis Major Planum and the icecovered polar caps.



VENUS

Venus is the third brightest object in the night sky. You can enjoy its beautiful set of moonlike phases through a telescope, retracing the landmark observations made by Galileo himself, which provided strong evidence that the planets orbit the Sun.



JUPITER

You can see the swirling, intricate cloud formations that surround Jupiter through a reasonably powerful telescope, as well as the famous Red Spot super-hurricane. Also visible are the four stunning Galilean moons, lo, Europa, Ganymede and Callisto.

POINT YOUR TELESCOPE AT THE MOON



Align your finderscope

Make sure the finderscope on your telescope is aligned with the main scope. This will help you to find the Moon more easily in the eyepiece and also zero in on all the interesting parts of the surface.



Improve **∠**your disc viewing

Use a low-power eyepiece to start with for your observations. This will help you see the whole disc and orientate yourself with the view. You can increase the magnification later.



3 Reduce glare

A Moon filter is really helpful to dim down the brightness of the Moon, especially when it is nearly full. This is a grey (neutral density) filter that will screw snugly into your telescope's small eyepiece.



4 Use your motor drive

If your telescope has a motor drive, make sure that you have it switched on. The Moon will appear to move swiftly across the field of view, especially at higher magnifications.



5Find the terminator

Direct your scope to the terminator - the line dividing the light and dark areas of the Moon. This is the most interesting place to look. Look out for sunlight catching crater rims and mountains.



6 Locate highlands

Another very interesting area to explore with your telescope is the highlands, especially in the northern and southern regions, as they show up well due to shadows. even near full Moon.



SATURN

With the naked eye, you can sometimes mistake Mars for Saturn, however once you point a telescope at it, this changes. As almost everyone's favourite planet – the wow factor of Saturn's gorgeous rings lights up the faces of many first-time planet-gazers.



URANUS

One of the two planets in the Solar System that are not visible to the naked eye, Uranus is known to observers for its distinct greenish hue and clouds have been spotted on occasions. Its 27 moons, while some are big, are not nearly large enough to be easily noticed.



NEPTUNE

The farthest outlying planet in the Solar System (as we're ignoring the debate about Pluto), Neptune is a remote and cold world. Through a large telescope, it's great to see the gorgeous blue colour, while knowing you are looking over 4.2 billion kilometres (2.6 billion miles) away.

ACCESSORIES Everything you need to bring the universe down to Earth

BEAT THE CLOUDS

Astronomers have a mortal enemy that comes from above to devour the stars: the clouds. To beat this enemy, the canny stargazer must employ meteorological knowledge on par with Michael Fish to gain the upper hand. To that end, telescope giants Celestron have produced this weather station to alert astronomers as to when rain, wind, ice or cloud are going to threaten their observations.

There's an entire Universe before you, but you don't know where to find anything. Fear not! The computer control's database has directions to a whopping 42,000 objects in its database

Get up in time

Nebulae and galaxies are faint and astrophotographers like to take exposures lasting for hours to gather every photon possible. So if you happen to drift off to sleep inside while your scope does the work outside, the weather station's handy alarm clock will rouse you before the clouds reach you

Condensation

Even under a clear night sky, your telescope can still become foaged up thanks to clingy drops of dew that stick to telescope mirrors and lenses alike. The Celestron station measures the saturation in the air to provide early warning of whether you'll need to break out your scope's dew heater

(CELESTRON



Avoid the clouds Stepping outside to survey the conditions, you see a bank of cloud on the horizon. Is it going to head your way to blot out the stars above? The weather station's anemometer measures wind speed, direction and chill factor for you to work out whether the clouds are going to blight you or someone else

> £135 | \$300 celestron.com

Celestron Deluxe weather station

Counterweights

Two 11.2lb (5.1kg) counterweights help to balance the apparatus, while the load capacity of the mount is 52.9lb (24kg), meaning you can employ a large telescope, plus all kinds of accessories

£1,150 | \$1,155 skywatcher.com

Sky-Watcher NEQ6 Pro SynScan GoTo mount

Batteries not included

Alas, the weather station will cost you a small fortune in batteries. The receiver with the LED screen takes six AA batteries, while the various sensors require four AA batteries each

KEEPING TRACK F THE UNIVERSE

The problem with celestial objects is they never stay still. Instead they move across the sky, an illusion caused by the Earth's rotation. But no sooner have you got a planet or star lined up in the eyepiece, than it drifts out of view again. Sky-Watcher's NEQ6 Pro mount, and others like it, solves the problem by chasing the objects for you.

WHAT TO LOOK FOR IN AN EYEPIECE



KELLNER

One of the simplest designs of eyepiece, the Kellner has been around since 1846 and is still useful. It's designed to correct false colours caused by refraction or bending of light in the eyepiece.



ORTHOSCOPIC

Although considered old fashioned and harder to find, the orthoscopic is still a useful design. They make very good lenses for observing planets due to their clarity and relatively narrow field of view.



PLÖSSL

Plössls are often included in commercial telescope kits. They give a reasonably large, flat field of view and vary in quality; but chances are you'll keep the best ones, even if you change your telescope.



There's no better way to pretend that you're not really standing in a cold. muddy field looking through a telescope at the stars than to float away into space thanks to the widescreen vision provided by Tele Vue's advanced wide-angle eyepiece, which sports a 100-degree field of view.

Eye relief

Staring down into a small lens that collects starlight inevitably strains your eyes, but the Ethos' healthy eye relief (the distance you hold your eve from the evecup) makes observing much more comfortable

Vital component

All telescopes need an eyepiece for the observer to be able to use them successfully. In fact, an eyepiece's optics are just as important as the optics of the telescope itself. The Tele Vue Fthos 13mm is designed to attach to 1.25 and 2-inch focusers

£480 | \$610 televue.com

> Tele Vue Ethos 13mm ultra-wide angle eyepiece

SHOOT FOR THE STARS Okay, so you don't have the Hubble Space Telescope in your back garden,

but the view through the eyepiece of your relatively meagre telescope still impresses you and you wish to record this fleeting glimpse of the Universe for posterity. You need the Orion Starshoot all-in-one CCD camera, which is the complete package for all budding astrophotographers out there.

le Vue® 13. Ethos" 100

Colour sensor

At the heart of the camera is a 1/3inch colour CMOS sensor with 3.75 by 3.75 micron pixels arranged in a 1280 by 960 array

£330 | \$400 telescope.com

Orion Starshoot All-In One CCD camera

Super-fast frame rate

turbulence can mean the quality of a planet's image can vary from one moment to the next. By capturing as many frames as possible, the Starshoot is guaranteed to record those fleeting moments of perfection

CREATE A DAZZLING STAR TRAIL PHOTO



Prepare your camera

First you will need to get your camera in the correct position. Mount your camera of choice on a solid tripod and then point your lens up at the night sky.



Select widest Caperture

Set your camera to an aperture of around f/2.8 or whatever your widest aperture is. This maximises the light-gathering capabilities of the lens.



Set 150 and shutter speed Set ISO and

Now you will need to set your camera to around ISO 400 and with a shutter speed of 30 seconds. A higher ISO may well result in some noise, as will a longer shutter speed.



Shoot in RAW Shoot around 20-30

frames in your camera's RAW format for the best quality. When you process the RAW files in your image-editing software, ensure that the same processing settings are applied.



5 Convert in Photoshop

In Photoshop, stack the individual frames as Layers and convert all of them except the Background laver (your initial frame) to Lighten blending mode.



Your star trail is complete

The fantastic-looking star trail is now essentially complete and the Layers can be flattened by going to Layer>Flatten Image. After that you're finished!



WIDE-ANGLE

By optical designer Al Nagler, who introduced the concept for a wide-angle telescope eyepiece. It was a big hit, due to outstanding quality and the impressive vistas. It's now also offered by other big brands.



LONG EYE RELIEF

This series was made for spectacle wearers, meaning you can use them comfortably without taking off your glasses. They have a wide field of view and the higher power pieces are good for Solar System viewing.



NAGLER-STYLE

With a breathtakingly wide field of view, Al Nagler gave these superb lenses his own name. With a superb 82-degree apparent field of view, this range is beloved of serious deep-sky observers.

WORK SHOP



MAKE THE PERFECT SMOOTHIE

Looking to make a healthy start to the year?

Everyone likes to think they are healthy, but the NutriBullet is selling itself as the cheat to maintaining a good diet. So how do you make the perfect smoothie? And what's so different about the NutriBullet anyway?

There's no shortage of blenders, juicers and processors on the market, but the secret to the NutriBullet's success is the powerful motor that's tucked away in its base. With 600 watts of power and a blade that rotates at up to 20,000 RPM

the NutriBullet is able to break down fruit, vegetables and even nuts in seconds. And you can throw in skins too, as this is often the area of the fruit that holds the most nutrition. So being able to add in absolutely anything healthy to your smoothie plays right into the NutriBullet's hands.

The kit comes with a handy booklet that's full of delicious recipes too, so you really won't have any excuses for not trying to be healthy and get that balanced diet.

"What's so different about the NutriBullet anyway?"

£75 | \$70 buynutribullet.co.uk

NutriBullet

Stylish and powerful, the NutriBullet is the perfect kitchen item for all smoothie lovers out there. It completely breaks down ingredients to make a pulp-free and very healthy drink.

Two types of blades

The Nutribullet pack comes with two varied blade attachments: the Extractor blade and the Milling blade

The cup of life

You fill up this cup with whatever it is you want to blend – this could be fruit, nuts or you can use the NutriBullet to crush ice too

One blender, two cups

You also get two small cups with your pack to empty your smoothie into, both hold up to 380ml of drink

Here's where the magic happens

Inside the base of the juicer, the NutriBullet has a powerful 600-watt motor and a cyclonic action that forces everything through the blades at an incredible 20.000 RPM



How to make the best blend



Grab your ingredients



Screw on the base Put in a small amount of water or juice to help the ingredients



Attach it to the NutriBullet Now turn the cup upside down so that the base of the cup fits onto the body of the NutriBullet. The joy of using the NutriBullet is that



Get blending Push the NutriBullet into place by pressing down and it will start to blend. Regardless of the variety of ingredients you use, this should only



Wash and go Now your smoothie's ready to drink! Just place a resealable lid on

MORNING GLORY

Start your day in style with this delicious smoothie

- 2 handfuls of spring greens
- 1 avocado
- 1 cup of raspberries
- 1 orange
- 1 cup of mango1/8 cup of cashews
- water

Like most of the best smoothies, this one has some greens at its core. Add them first, then the fruit and finish off by adding the cashews on top - these are obviously harder to blend so it's best if they are as close to the blades as possible. Add a splash of water and then you're all ready to go.

WORK SHOP SHOP DECORATE LIKE A PRO The tips you need to avoid a DIY disaster

Decorating a room is easy, right? Well yes, admittedly it's not rocket science, but there's definitely a right way and a wrong way to do it. The last thing you want after spending weeks – or maybe months – pouring over those glossy home-decoration magazines for inspiration, tentatively dabbing tester pots on the wall and arguing over colours until you finally get your own way is to make a silly mistake. For instance, this writer once dripped scarlet red paint on the freshly laid cream carpet they foolishly had installed first.

To help you avoid a similar decorating disaster, here are five simple techniques to get you started, as well as pro tips for choosing the right brush for the job. Sounds too much like hard work? Check out our top five tools to make the whole process quicker and easier.

"Decorating a room is easy, right?"



1 The easy way to strip wallpaper
If the wallpaper has a vinyl coating then it's slightly easier as you can simply scrape off all the vinyl with a wallpaper knife (at least three inches wide). Then soak the backing paper with warm water, leave for around ten minutes and then scrape it off. If your wallpaper has been painted then it's worth scoring it first to let the water soak though. You can use an electric steamer if you wish, which can be rented from any tool hire store.



2 The delicate art of cutting in

Cutting in (the process of painting around the edge of a wall that's bordered with a different colour) is a slow and very laborious task, but it can be made much easier with a paintbrush that has an angled head. You can pick up one of these at any major DIY store or if you have a spare brush around three inches wide, then you can always trim it yourself to save money.

5 TOOLS TO MAKE DECORATING EASIER



Stanley Orbital Wallpaper Scorer

A simple tool to make life easier if you have to remove wallpaper, as the rotary cutting wheels perforate the wallpaper to help with stripping. £14 | \$30 | stanleytools.co.uk



3M Hand-Masker

For a really professional finish, this masking kit is ideal for masking windows and doors in an instant It even comes with an instructional DVD too. £52 | \$36 | 3mdirect.co.uk



JML Point 'n' Paint

The Point 'n' Paint is a simple device with a sponge attachment that makes easy work of applying paint and the pointed end makes cutting-in a doddle too. £10 | \$15 | jmldirect.com



3The perfect way to paint windows

Everyone hates painting windows as it takes ages and keeping the paint off the glass is a major hassle. There are several ways that it can be made easier though. Firstly, you can use masking or painter's tape to cover the edge between the glass and the wood, but this can take a while to tape up if the window has a lot of panes. Alternatively, you can just paint over onto the glass and then use a paint scraper to remove it or smear the edge of the glass with Vaseline, which can then be easily wiped off after painting.



4 Lose the drips

It's tempting to overload a brush with paint as you obviously want to do the job as quickly as possible, but a better idea is to dip only the bottom half of the brush into the paint and then tap it firmly on the side of the tin to get rid of excess paint. It'll take a little longer, but the results will be much better.



Purdy Brush Roller Cleaner

A cheap tool that will shave off valuable time when it comes to cleaning out all of your brushes and rollers.

£6 | \$3 | purdy.co.uk



Black & Decker Fine Spray System

If you want to paint quickly, you need a paint sprayer, like this beauty from Black & Decker. £50 | \$75 | stanleytools.co.uk

HOW TO CHOOSE THE BEST BRUSH

1 Simply the best

Always choose the best brush you can afford. Cheap ones will constantly shed bristles and will hold less paint, so it pays to splash out a bit.

2 Variety is the spice of life

No one brush can do all jobs, therefore get

yourself a selection so you have one for every task. A one-inch brush (angled if possible) is ideal for windows and delicate work, a five-inch one is good for large spaces, and finish off with a couple of two or threeinch brushes (one angled) for edges and cutting in.

3Real or artificial?
You may think that buying a brush with natural bristles is always the best option, but modern synthetic ones are very good too - although natural bristles can give you a better finish for gloss work.

Handle with care

If you're going to be using your brushes a lot then it makes sense to get one that feels comfortable in the hand - whether that's wooden or plastic. Hold a few and see which one feels best.

5 Handle with care

Take the time to clean out all the paint from your brushes after you've finished painting to stop them getting hard and unusable. Then, when they're clean, store them upright in a container or jar to stop them warping out of shape when they're dry.

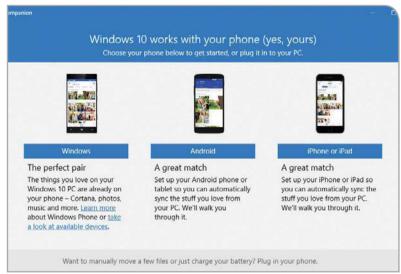


5 The right tools for the job If you want to be really professional about it, then you could always remove the radiator from the wall to paint behind it, but a much simpler way is to use a dedicated tool for the job. Get yourself a proper radiator brush or roller (neither should cost you more than £5) and you'll be able to quickly paint behind the radiator without getting any paint on the radiator itself.



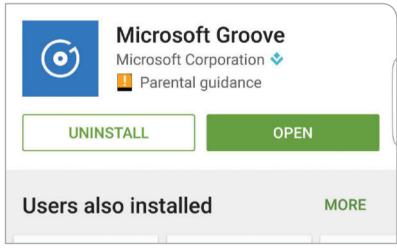
One of the standout features with Windows 10 was the new Phone Companion app. which basically makes the job of syncing your phone to your PC a breeze regardless of the device you own. Once you have signed in with a Microsoft account then you can easily link your phone's apps and contents with your PC, using OneDrive as a cloud-storage system to transfer files from your computer to your phone and, obviously, vice versa.

There are obviously pros and cons to the new system, but Microsoft are making a big deal of the fact that Windows 10 has created a user-friendly way to connect your phone to your computer with the minimum amount of fuss. And, in credit to them, that's pretty much what they've done, but how useful you'll find it depends on how happy you are about sharing all your information on the cloud and whether or not you can cope with Windows 10's admittedly fairly basic default photo and music apps.



From the top

Go to Start>All apps>Phone Companion and you'll see this welcome screen that informs you the software is now compatible with all three major phone operating systems. Connect your phone to the PC, click on the OS of your choice and then wait while the PC installs the software needed to access your device.



Sync music and photos

The two main areas you're likely to want to sync the most are your photos and music. When you sign in to your Microsoft account through OneDrive on your device, your photo library will be automatically transferred to you PC - along with any new pictures you take. Your music library is slightly trickier though, as you'll need to install the Groove app to play your music; getting it from your PC onto your phone (or vice versa) takes a bit of work too.

Head in the clouds Alternatively, why not store everything in a series of dedicated cloud apps?



more storage

Dropbox Dropbox is a quick

upload individual files or folders and share them instantly with all of your friends or work colleagues. dropbox.com Price: 2GB free or £8 | \$10 a month for



Google Drive A browser-based

service with a large amount of free space that's ideal for storing files that you can then access from any device or computer.

google.com/drive Price: 15GB free or from £1 | \$2 a month for more storage



Google Play Music

Store all your music for free or pay a monthly fee to have access to over 35 million songs you can then download to your computer or device play.google.com/music Price: Free or

£10 | \$10 a month

Apple Music

A similar service to Google Play Music, but with the added advantage of a very impressive three-month trial for the full version and access to Beats 1 Radio. apple.com/uk/music £10 | \$10 a month



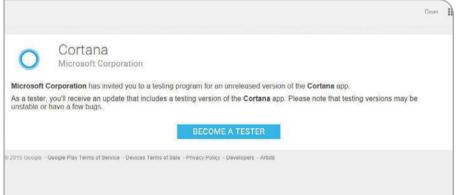
storage

iCloud

A cheap way for Apple users to store information in the Cloud. After a few teething problems, iCloud has become a very useful tool. icloud.com Price: 5GB free or from £1 | \$1 a month for more



3Organise your life with Windows 10 Outlook syncing with Windows 10 is one of the standout features, as it enables you to sync all the program's features effortlessly with your device. Any emails, calendar entries and contacts from the desktop version are then immediately synced with your device and any changes or new emails you send from your mobile or tablet will sync back to your computer. It's fast, efficient and very user friendly.



Sassistance neededAt the time of going to press, the Cortana app was still unavailable from the Google Play store, but if you click on the Cortana option then you do get an invite to test the Beta version of the software. Basically, it's another digital personal assistant like Siri or Google Now. Cortana does have the advantage of syncing its options with the PC version, meaning the mobile app should be much more tailored to your needs.



06Pros and cons Microsoft claim this is the easiest way to link your device with a PC and they've gone some way to make the installation and running of the software a straightforward process. While there's no denying that the OneDrive Cloud system does work well and being able to sync Microsoft files from Word and Excel to your phone is great, the music and photo programs are very basic to use. This means that you'll soon end up using better alternatives like iTunes or Google Play Music.



Word up

As you'd expect, the Microsoft suite of software works very well through the Phone Companion. Word, Excel and Powerpoint files can be sent to your device, edited and then saved back for further amends on your computer. Simply save your mobile files to the OneDrive and they'll be accessible through your computer (or any other device) at a later date.



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TURN YOUR HOLOGRAM PROJECTOR

Create 3D images using any smartphone with this simple hack

This is the sort of thing we absolutely love, where someone has the delicious idea to use technology in a way that's never been considered before. In this case, it's projecting four images on a looped video from your phone onto four angled pieces of clear plastic to create the illusion that the image is floating just above your phone.

Best of all, the equipment you need to get the hologram working on you phone can be made quickly and easily with stuff that you probably already have lying around the house. We've given you a few suggestions for videos you might want to check out, but a simple YouTube search will bring up loads more.

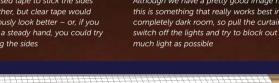
We're indebted to the very wonderful YouTuber Mrwhosetheboss for all his assistance with this workshop and recommend that you also check out his original video (youtu.be/7YWTtCsvgvg) and channel for more tech highlights.

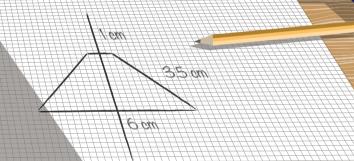
What you'll need

It's time to get all *Blue Peter* about this. Before you crack on, here's a list of the items you need to gather up. Thankfully, they're all things you're likely to have lying around somewhere and if you don't have any graph paper then feel free to make your own. The lines for this need to be two millimetres apart.

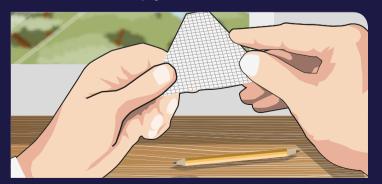
- Graph paper
- CD case
- Tape or superglue
- Pen
- Scissors
- Smartphone
- · Sharp knife or glass cutter







A simple design To start, you need to mark out a basic trapezium shape on graph paper, as shown here. The top edge needs to be one centimetre across and the bottom one should be six centimetres – with two sloping sides of three and half centimetres each.



2 Cut shapes

Cut the shape out and this should be what you're left with. It's worth noting that the sizes given are just a guide. If you have enough plastic – or want to do the hologram on a tablet - then you can double or even triple the dimensions.



– so it'll display a better image if you're viewing the hologram on a tablet!

TIME FOR THE SCIENCE BIT

So how does it really work? Are you actually looking at a hologram? Well, not quite. The angle of the clear plastic provides just enough reflection to bounce the light from the image displayed on the phone's screen back onto the plastic and because the plastic is clear, it gives the illusion that the image is floating in midair. As you have created something with four sides, the image can be viewed from practically any angle, which helps to increase the realism of the illusion.

OF THE BEST HOLOGRAPHIC VIDEOS ONLINE



You're our only hope

It's not possible to round up holographic videos without this gem. Turn down the lights and pretend she's talking to you. youtu.be/YsI426kVNII



Take flight

The longest video in our list, as it's over five various humming birds moving in and out of

youtu.be/Uftu0RaIDkw



minutes long, it's a super-sharp display of the screen.



Four squared To help create the 3D illusion, there are four versions of the image placed at 90-degree angles to each other. The space in the middle is where you

place your viewer

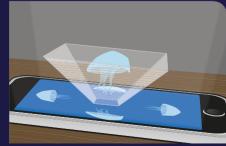
Mark your spot Take off the sides of the CD case to make it easier and then carefully trace around the edges of the template on the plastic. The more accurate you are then the more likely you'll cut out a perfect shape and the final holographic effect will be sharper.



5 Stick it all together Tape the four share Tape the four shapes together so you get something like this. You can use any type of tape, but clear tape gives you the best effect. You can glue the sides together if you wish, but take care with this as it's very easy for the glue to spread along the plastic.



Four of a kind Cut the shape out of the case slowly and carefully, using the sharpest knife you can find. You need to repeat this three more times until you have four identical shapes. Again, the more care you take here, the better the end result will be.



The end result Run one of the holographic videos, switch off all the lights (you really want it to be as dark as possible) and place your creation on the phone so that it's perfectly in the middle of all four images showing on the screen. And that's it. Enjoy!



The variety show This video is a mixture of jellyfish, sharks

and butterflies and although it's short, it's beautifully animated throughout. youtu.be/PKbFbG7jNxA

WORK SHOP SHOP 105 6 WAYS TO LIVE ON THE CLOUD Some simple solutions for an online life

To most people, if you mention cloud-based storage then you'll be met with a blank stare and, occasionally, a nervous twitch. The myths surrounding anything to do with the mysterious cloud are that a) it's complicated and b) it's not safe. Thankfully, neither of those statements are actually true and once you experiment with living a cloud-based life, then you'll never turn back.

Simply put, a number of companies (including ones you may have heard of such as Google, Amazon and Apple) have systems in place that enable you to upload files to a digital storage facility. Why? Well it's a good way to back up your files for one thing and it means that you can access them on any device wherever you are – from music and videos to work files and documents.

So without further ado, here are six ways in which we guarantee the cloud can make life simpler for you, from online photo albums and music, to storing notes and to-do lists.



BACK UP YOUR PHOTOS



One of the main uses for the cloud is to store photos from your phone or tablet. Luckily, it's incredibly simple to activate and means you can view your photo library from any other device or computer. Once you're backed up, you're free to delete photos on your device, knowing that they're permanently stored in the cloud – saving you valuable device memory.

O1 Switch on backup
On Android, you need to make sure your
Backup settings are switched on, so open the Photos
app and go to Settings>Backup & Sync. If they're not
on, tap the button at the top of the screen.

Q2 A mobile photo library

Then simply sign in to your Google account on any other device – such as a computer or a tablet – and go to Photos in order to view your library. You can now edit photos, download or delete them, or create albums to share.

The joy of iCloud
Apple's own cloud-based storage system is, rather unimaginatively, called iCloud and it works in a very similar way. Make sure that your Apple device's iCloud feature is turned on in Settings and then log onto your computer to see your Apple device's files.

SYNC YOUR MUSIC



If you have a large music library and a relatively small amount of memory on your device, then it's probably not a bad idea to store your entire library in the cloud. That way you can sync across only the music you like – safe in the knowledge that it's all stored if you ever want access to it. As always, there are some very simple ways to make this happen.

Q1 Back up your library
The easiest (and best) way to save your music library to the cloud is via Google Play Music. To start, just download Google's Music Manager from play. google.com/music.

Q2 Automatic syncing
Google's Music Manager will ask you where you'd like to import your music library from or whether you just want an individual playlist before uploading everything to the cloud and automatically syncing it with any devices linked to your Google account.

There's an easy way to do it on an Apple device too, but iTunes Match will charge you £21.99/\$24.99 for the privilege – although you do get it free as part of Apple Music membership. Alternatively, Apple users can take advantage of Google Play Music.

TAKE A NOTE

As smartphones get smarter, our uses for them have rapidly expanded. Now the technology has made it easy to make notes, jot down thoughts and ideas at any point, and the joy of a service like Evernote is that it stores all of these scribbles on the cloud. You can write up some ideas on the move and then continue with them on your computer, safe in the knowledge that everything is stored online and accessible to you at any time from any device. Here's how it works.

Sign up to the service

Head to Evernote (evernote.com) and log in with an email and password. It's a free service, but you can pay from £19.99 a year for extra features.

Q2 Automatic syncing
Creating a note is very easy. You simply write as you would on a normal word processor, then you can also drag and drop any images, videos or any other file into the note too.

Viewing notes on your deviceDownload the corresponding app on your device and the notes you've saved will appear here.
Any files can also be opened, as long as you have the app installed to do so.

SET UP GOOGLE DRIVE

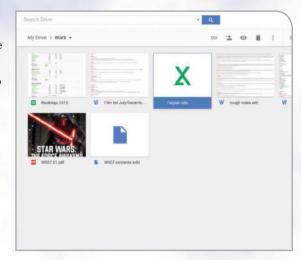


An invaluable tool for anyone who works remotely or who wants to access files at any time and be able to share them among friends and co-workers, Google Drive enables you to store word processor docs, spreadsheets, PDFs and even Adobe files (Photoshop images or InDesign pages). You get a whopping 15GB of storage for free, plus the ability to buy more.

Q1 Start organising your life
All you need to do to sign up for Google
Drive is head to google.com on your device or a
computer and sign in with your Gmail account.
Then just set up a new folder and you're ready to
start uploading files.

Q2 Get started
In the great tradition of Blue Peter, here are some that we uploaded earlier. You can view PDF files, edit Word files and Excel spreadsheets or just store practically anything else you can think of to be downloaded later.

Q3 View notes on your device And, naturally, the same is true on the portable version of Google Drive. Any amends you make on the move are automatically updated to the cloud.



Moderate 199 secretal aprenties apreciate apreciation of the control of the contr

WONDERFUL WUNDERLIST

If you're anything like us, you probably have an endless sea of scraps of paper with important notes scribbled on them. Notes get lost, things get forgotten and life descends into chaos. All that stress can be avoided though with one simple service: Wunderlist. As the name suggests, it's a simple online storage service for all of your to-do lists. You can create,

share and alter them whenever you want, and on any of your devices.

Q1 Start organising your life
That's a bold statement to be sure, but trust us, after a few weeks with Wunderlist you'll be amazed how you ever managed without it. Start by signing up at wunderlist.com.

Q2 Get started

Make a new folder, name it and start writing up jobs you need to remember. You can easily create multiple folders and drag and drop jobs between them.

Q3 View notes on your device
The app on your device will regularly sync with your online account, so any changes that you make on the web version are quickly updated on your device and vice versa.

OODROP IT LIKE IT'S HOT



Still the best way to store files and folders probably has to be Dropbox. You can either upload things directly to the service's online browser or, conveniently, you can also download a program to your computer to just drag and drop items into it like any other folder on your PC. You get 2GB storage to begin with, but can earn more space by referring friends.

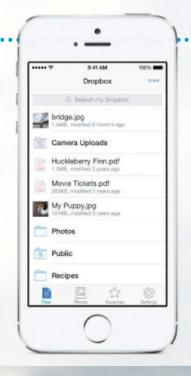
Q1 Share and share alike
If you have a stack of files on your computer or your device that you want to be able to share

or your device that you want to be able to share quickly and easily then Dropbox may well be the best place for you. Head to **dropbox.com** and then sign up for an account.

12 The Dropbox folder

One of the good things about Dropbox is its ability to enable you to have a standard folder on your desktop to drag and drop your files into – just like this one here. Another great thing is that it's absolutely free!

O3 Out and about
The mobile app mirrors the online service perfectly, so you can upload files, view and download anything that's on there. If someone you know needs something in a hurry, then this is the perfect solution from cloud software.



Portable printer

They laptop even had a built-in dotmatrix printer for on-the-go printing on reciept-sized reels of paper

Simple display

The LCD screen displayed just four lines of 20 characters, but could still be used for word processing

Tape deck

This early laptop had a built-in microcassette drive, though you could also attach an external floppy drive



Recharging woes

One of the problems faced by early adopters of the HX-20 is a malfunctioning battery pack that refused to charge properly

Modular design

An expansion port on the right-hand side of the device allowed users to physically add more ROM and RAM

Whatever happened to...

pson HX-20

The Epson HX-20 began a new trend of powerful, A4-sized personal computers and is widely regarded as the world's first laptop. It certainly wasn't a looker, but still revolutionary for the time. It promised owners to enjoy an unprecedented 50 hours of battery life, however some users reported problems recharging.

They said...

"The [Epson] HX-20 is about the size of a threering binder and, at three-and-a-half pounds, [it's] not much heavier."

David H. Ahl review, Creative Computing (March 1983)

"It is generally considered both the first notebook and handheld computer, and it is for this reason that it is highly prized among collectors." The Centre for Computing History

Buy one today

Price: Not working: £100 | \$130

If you manage to snag a mint, working and complete HX-20 (with the carrying case) for less than £100/\$130 you can count yourself very lucky indeed. If the nickel-cadium (Ni-Cd) battery pack lets you down, you can replace the battery with an NiMH battery pack or four AA cells in a holder that can be soldered in place. This is not generally considered to reduce the collectible value of the computer, as doing so doesn't damage any internals. For more information, visit oldcomputers.net or epson.com.

How it worked

The HX-20 was extremely portable for its era, but still managed to pack in two Hitachi 6301 CPUs, a 16KB RAM expandable to 32KB (considered a major asset at the time), printer and microcassette deck. From a pre-Windows era, you still had to type out computer codes and commands in Epson's BASIC language to use it.

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